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THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

A RECORD OF INFORMATION ON THE TOPOGRAPHY AND NATURAL PRODUCTIONS
OF MADAGASCAR, AND THE CUSTOMS, TRADITIONS, LANGUAGE,
AND RELIGIOUS BELIEFS OF ITS PEOPLE.

EDITED BY THE

Rev. J. SIBREE, F.R.G.S.,

AND

Rev. R. BARON, F.G.S., F.L.S.,

Missionaries of the L. M. S.

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THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

MALAGASY VILLAGE LIFE:

PEN AND INK SKETCHES OF THE PEOPLE OF WESTERN IMERINA.

ON examining the materials to be worked up into this paper my mind is bewildered by the magnitude and complexity of the subject. It involves customs which might be elaborated into separate papers, but which, treated as a whole, lay one open to the danger of diffuseness and superficiality. And it seems impossible to give the subject proportion and balance, compress and arrange as one may; for which reason I have confined my attention to a few salient characteristics, at the same time, however, making no pretensions to an exhaustive treatment of any one of the matters dealt with. I have described personal impressions as simply and truthfully as possible, equally avoiding glosses and exaggerations.

No one can ensure perfect accuracy or absolute correspondence of the delineation with the objective facts themselves; the observer's senses may be defective, his information partial, or his conclusions erroneous. But herein I have related the facts as they appear to me, and have stated some reasonable inferences from them.

My purpose is to represent by description or suggestion the conditions of life in an ordinary Malagasy village, to reproduce as far as possible the colour and atmosphere of things. Should the result be in some respects a disagreeable and darkened picture, it should be remembered that the district in which my experience has been gained is a day's journey (in some cases two) from Antananarivo, the centre and source of Malagasy civilization. The native heathen ideas are as yet only weak-

ened, not destroyed, by Christianity. Although discountenanced by the Queen and Government, the old superstitions still, to a large extent, maintain their empire over the mass of the people, owing doubtless to insufficient instruction and the want of fuller personal exemplification of the principles of the Gospel. There is in these parts a thin veneer of civilization, with a sort of irresponsible acquiescence in the doctrines of religion, but often underneath the polished exterior and orthodox phraseology are discovered brutal heartlessness and rascality. Only a few characters would bear close examination; most would be found deeply flawed and stained.

Perhaps my experience has been exceptional and unfortunate; average village life may not be so faulty as it has seemed to me, and something may be due to morbid perceptions in the observer. I sincerely hope it may be so.

In order to secure as clear an arrangement of the subject as possible, the matter will be thrown under two main divisions, namely, Domestic Relations, and Social Conditions.

I.—DOMESTIC RELATIONS. The romance of Malagasy courtship in an almost invisible quantity. Many unnatural mothers, for reasons known to themselves, encourage their children in immorality from a early age; thus the bloom of innocence is destroyed, and many are doomed to disease and childlessness. Also, it is common for young couples to cohabit previous to marriage, in order, it is said, to test compatibility of temper and constitution. At the end of six months or a year, the man sometimes comes to the unreasonable conclusion that there is not sufficient ground of agreement, and seeks someone more to his fancy. Many Malagasy daughters are subjected to this treatment: they go on trial with the prospect of marriage, but with the understood possibility of rejection. Others again, to preserve more semblance of respectability, conform to the old marriage custom, which is, however, no longer binding, and thus evade the element of permanence in their union. One damsel, by this provisional and contingent arrangement, has been led to seven successive homes.

The parties most closely concerned are generally allowed no option in the matter. Their partners for life are arbitrarily chosen by the parents and kinsfolk, and the contract is often made while they are mere children. The main consideration is to keep family property intact, for which reason near relations most frequently intermarry. Should there be no one in any wise eligible, the daughter is made over to the most wealthy suitor, irrespective of age, character or appearance. Hence there are found some most incongruous matches. Personal predilections or previous attachments are overruled and ignored. A woman on her deathbed directed her husband, who was over

fifty years of age, to wed his granddaughter (by marriage), a girl of fifteen, the motive being to prevent the property becoming separated.

Another man, fifty-five years of age and a widower, lately informed me of his approaching marriage. On my inquiring into the lady's antecedents, he disclaimed any responsibility in the choice; the matter had been taken up by his fellow-pastors, who had selected an orphan girl fourteen years old to be his wife and helpmeet. Her crochety, cranky mother had also been thrown into the bargain, that is, she was to come and live with her daughter and her husband.

Malagasy girls are most modest respecting qualifications in a husband. The only conditions generally required are, firstly, that he shall provide them with food and clothes, and secondly, that he shall abstain from rum-drinking and immorality. These simple rules being complied with, she is contented and regards any extensions of these simple virtues in the light of mercies for which to be devoutly thankful.

A good physique is a desideratum, but is not indispensable. A man of my acquaintance, with a blind eye and a shrivelled leg, yet withal a decent, good-tempered fellow, has never been at a loss for a partner. The fair candidates for matrimony, however, unable to stand the fire of good-natured raillery from other girls respecting the unwholesome appearance of their prospective husband, have in turn abandoned the enterprise and returned home. Another man, by calling a butcher, had completely lost his nasal organ and presented a repulsive aspect, yet has had two wives in succession, young and conspicuous for good looks. His face was no attraction, but probably his good character and comfortable home supplied the motive. A third class are those who, with totally different histories, marry for station. A Malagasy noble of respectable character married with alacrity a girl of higher rank, though dishonoured by incontinence from her youth, and at the time divorced from her former husband. The prospect of happiness from such a union was slight indeed.

Matrimonial engagements are usually of short duration. A few weeks or even days suffice to make each other's acquaintance. A maiden, whose parents had negotiated for her husband, first saw him on a Sunday morning, and the marriage was consummated on the following Thursday; but with the melancholy result that after a year the union became intolerable, and the parties separated. Another mature Malagasy bride first saw her intended husband in the pulpit, and at the close of the sermon, both parties being agreeable, the marriage was performed. In this instance, however, sufficient compatibility existed for a reasonably happy union.

To illustrate how little understood is the sentiment of affinity, let me cite the case of a lad who, on being rejected by a girl in one of the town schools, requested the missionary to recommend him some other eligible girl for immediate marriage.

Now I will relate a story that pained and yet amused me. A certain youth was afflicted with ulcers of the leg, unconsciously foul and odoriferous. It was part of my duty to attend him, and with suitable treatment the sores rapidly healed. In a few weeks he was seen about again, a bright, smart fellow enough. But I accidentally heard of the situation. In his extremity, when recovery was doubtful, a decent woman had been invited to become his nurse, with the understanding of marriage, when practicable. She applied herself bravely to the task, and to her perseverance his restoration to soundness was mainly due. But it transpired that as he found himself gaining ground and able to walk abroad, he became enamoured of another woman, whose home and competency proved too strong a temptation, so that the faithful creature preparing for bridal was heartlessly dismissed.

There are still solitary cases of polygamy, traces of the state of things that existed before the introduction of Christianity. One worthy is reputed to be in possession of seven wives, who are domiciled in inferior houses around the patriarchal dwelling. That he has been allowed to remain undisturbed so long is unaccountable, for such cases have usually been promptly and severely dealt with.

Here, too, as in other countries, are not wanting instances of young gallants, who affect to be enamoured of faded but wealthy women, whose property, however, is soon squandered, and they left to bemoan their witless folly. Without question it is to the unequal forced marriages that the discordant homes and ruined morals of the Malagasy are to be mainly attributed; for through them brightness, harmony and progress are made impossible, and only too often, in a short time conjugal vows are broken, the home dishonoured, and human lives blighted for ever.

The Wedding.—A few words will suffice to describe this interesting ceremony. The bride's outfit, of dress, ornaments and palanquin, is provided by the husband. On the eventful morning his relations assemble early at the house, a spokesman is appointed, and all set out in high spirits for the bride's home. If persons of any pretensions, they are carried in palanquins, arranged in order of seniority, the youngest member of the party leading the way, and the bridegroom bringing up the rear. On arriving at the house, they seat themselves in the same order and wait until the bride's relations have all assembled. The spokesman then opens the proceedings with salutations and

congratulations on the pacific nature of the business to be transacted; and after a good deal of moral platitudes concerning the duties of mutual forbearance, industry and constancy from either side, the marriage bond is drawn up and agreed to by the contracting parties. Then all sit down to a banquet composed chiefly of beef, pork, rice and fruit, and afterwards, amid general felicitations and best wishes for the long life, healthy progeny, and much happiness of the worthy couple, the combined party escort them to their new abode. As they leave the threshold, the father of the girl exclaims: "O God and ancestors! behold our daughter is wedded to So-and-so (pronouncing the husband's name); grant them length of days, progeny and prosperity."

When they arrive at the place, if there is a walled enclosure, the whole party make the circuit of it three times, then, entering the yard, they also go in procession around the house; and again, when inside the house, the newly married couple and all who can squeeze in make the same motion around the hearth. This manœuvre is symbolical, being said to ensure the bride's attachment to her new home and so prevent her running away. After some time has elapsed, another feast is spread, great conviviality ensues, and when night is closing in, the young couple are left to themselves, with the exception of the girl's sister or mother, who remains to help in household matters until things become more settled and familiar.

Home life.—Malagasy manners and canons of etiquette are new and strange to Europeans, and it requires time and sympathy to understand them. The Malagasy are a polite and courteous people, who instinctively avoid the disagreeable and endeavour to keep matters smooth, in outward appearance at least.

Malagasy houses in the country usually consist of a single apartment, in which the whole family eat, live and sleep. (Many are now built higher, with an upstairs room.) The building is made of clay or sun-dried bricks, the inside is plastered, but there is no attempt at embellishment, and no evidence of taste. And owing to the fact of there being no chimney for the escape of smoke, the walls are discoloured, and the rafters and thatch begrimed with soot, which falls in flakes when disturbed by high winds. The furniture is of the simplest and rudest description, there being no chairs, tables, or ornaments. It consists of a plain bedstead fixed to the wall, cooking utensils, a few clean mats, and a curious assortment of odds and ends suspended from pegs in the wall. The windows (one to each house) are not glazed, and being small do not admit much light; the houses are therefore for the most part dark and untidy. No attention is paid to ventilation at night, door and

window being fast closed, so that the foul atmosphere becomes almost stifling. The entire household, comprising the members of the family, slaves and occasional visitors, to the number of perhaps a dozen persons, are frequently lodged in the one room, the floor being literally covered with sleeping forms. Added to this, the live stock, consisting of pigs, sheep and fowls, are often sheltered under the same roof and only separated from the family by a low partition. In travelling, the European sometimes suffers considerable inconvenience by this multiplicity of life in his immediate neighbourhood.

After he has fallen asleep, exhausted by attempts to discourage the attentions of mosquitoes and other pests, he is startled towards morning by a cock crowing near his head, and anon by pigs grunting and squealing. Other principles of hygiene are also disregarded. Cattle-folds deep in filth, or pestilential pools wallowed in by lazy pigs, are often the only prospect from the window. Malagasy sight and smell seem alike incapable of offence.

And the condition of the domestic animals often distresses the foreigner beyond measure. He feels convinced that did the miserable creatures but know how to terminate existence, they would unhesitatingly do so. Being rarely fed, and seeming too famished and feeble to steal, many are reduced to mere shadows and echoes of their proper selves. To see them crawling in the sunshine is most pitiable. On my journey to the coast last year I was struck by the difference I saw in the Bétsimisáraka cats, for nearly all were sleek and fat. When I called my bearers' attention to the fact, and commented on the disreputable appearance of cats in Imèrina, it was replied, that the reason was not far to seek: Betsimisaraka cats were fed for the table and were considered a delicacy. One man said that once being invited to a feast, he glanced towards the savoury provision and caught sight of a cat's head and limbs seething in the broth. Of course he bolted. Any superiority of Betsimisaraka morals in that respect was therefore emphatically denied.

The Malagasy have three meals a day: breakfast about seven, dinner at twelve, and the evening meal about eight. When not doing outdoor work, the breakfast is sometimes foregone; rigid economy being practiced by the poorer people. Whilst waiting for the rice to be cooked, the family and slaves pass the time in gossip and singing, but some are so parsimonious as to sit in the dark rather than spend money on lamp or candles. Many of the darker-minded people, who have hoarded considerable wealth, are miserly in their retrenchments, denying themselves even sufficient food and clothing.

When the meal is ready, two or three capacious plates and a number of spoons are placed before the family, who are seated

in groups, and the rice is served from the rice-pan by a slave. If they do not possess such a helper, it is etiquette for the wife to serve the rice, and the husband to ladle the meat on to the top of the piled-up rice. Three or four persons eat from the same plate, and the children or social inferiors do not think of commencing before the head of the family, who takes precedence even to drinking water. Conversation subsides when eating has begun, and the clatter of spoons is all that is heard. When hunger is satisfied, all sit still for a time, then turn aside to wash their mouths and teeth. (All classes are scrupulously attentive to their teeth, which are consequently usually preserved white and sound to old age.) When the evening meal is finished, overcome by toil and gastronomic action they sink into slumber, often to be disturbed by nightmare or wakened with headache.

The Malagasy are very industrious. At dawn they start for the fields. Their main occupation is the cultivation of rice, their staple food, as well as other cereals. The low-lying valleys, where irrigation is possible, are laboriously dug by the spade. They have no notion of ploughs and horses, and oxen are only utilized afterwards for trampling the clods to a consistency. Then, when the soil is prepared and the rainy season sets in, the rice is sown, to reappear after a few weeks as tender green blades, large emerald-tinted patches of which, lying between the rising grounds and at the foot of the villages, give much brightness to the landscape. When the rice-plants are come to sufficient size, they are taken up and transplanted by the women and children. Harvest is a merry and joyous time for the Malagasy. Both sexes of all ages unite to reap and carry home the golden sheaves, which are then thrashed and stored in dry circular holes outside their houses.*

Many of the men engage in commerce, buying their stock (consisting of calico, prints, haberdashery, soap, ornaments, drugs, etc.) in Antananarivo, or doing a petty trade in rice, meat and fruit, some making the round of all the weekly markets within reach. Others practice the arts of blacksmithing, masonry, carpentry and bricklaying. There is also a minor class without any regular occupation, whose movements are uncertain, but who almost invariably return home laden with spoil. These are social parasites, who flourish on the simplicity and depravity of their neighbours. Their function is to foment dissension, to discover flaws in property, to intimidate by show of law, only to bring about a private compromise to their own advantage. Such gentry are more numerous than is generally imagined and wherever found are a troublesome scourge.

* For a fuller description of Malagasy rice cultivation, see ANNUAL 1888, pp. 479-488.

Malagasy women, unless in good a position, with slaves to assist them, hold by no means a sinecure. Their duties are numerous and varied. Many are clever in spinning silk, cotton, hemp and other cloths, weaving mats, and doing plain and ornamental sewing. Then they are expected, of course, to do all the work connected with the house, namely, sweeping, fetching water, collecting fuel, washing clothes, pounding rice, and cooking food. These multitudinous tasks occupy a considerable part of their time and are no mean tax on a woman's strength.

There are isolated cases where, according to compact, married people keep separate accounts; the woman doing her household duties and at the same time engaging in some industry (*e.g.* spinning and weaving), whereby she is able to support herself and lay by a little private store. Such mercenary arrangements, however, do not commend themselves to the ordinary judgment, and as a rule do not work harmoniously, there being constant suspicion of pilfering and imposition.

The Malagasy have not yet risen to the conception of "woman's rights." In heathen households she holds a very subordinate position, being of far less consideration than the children she has borne, and is regarded by her husband in the light of a superior slave. She is expected to be sedulous in attentions to his comfort, and pays great deference to his wishes and opinions. Should she be remiss or unfortunate in domestic arrangements, the husband does not scruple to reprove her in the presence of her children and inferiors.

Generally speaking, there is little mutual confidence or community of interest between the members of the family. The husband would not dream of letting his purse get into the hands of his wife. A pastor once expressed astonishment at my allowing a servant to weigh money from my purse, and said that he could not trust his own son. And some Malagasy wives are subjected to much injustice and tyranny from this cause. When a man goes on a journey, he leaves only the barest provision during his absence, often an insufficient quantity of rice, with no money for meat and contingencies. Some are so unhandsome as to have recourse to a system of private marks for the detection of extravagance. Thus many women are forced to cheating or prostitution to eke out their allowance during the absence of their husband. It is a melancholy fact that to many Malagasy, material stores are more important than the chastity of their wives.

Malagasy families living much together, the young wife is often placed at serious disadvantage when transferred to the home of her husband's parents, or they, on the other hand, are established in hers. If they are congenial natures, all is right;

but if not, as is too often the case, misunderstandings are aggravated, and irritation made chronic, until it amounts to actual persecution of the unfortunate girl. Her authority is undermined, her husband is biassed by his mother and sisters, who sometimes even encourage him to immorality in order to spite her. And should he be addicted to rum-drinking or hemp-smoking, the lot of the wife is inexpressibly hard. There are constant scuffles, with cries of "murder!" from which the poor woman comes out a pitiable object, with clothes torn, eyes blackened, or teeth knocked out. And yet, a fair proportion of Malagasy marriages are happy enough.

Here is a true picture. Soon after our settlement here, a young couple in high station called to visit us. The husband seemed an ordinary fellow enough, but the girl was refined and attractive, and both looked contented and happy. There were two children of the marriage during the next four years, after which things began to go wrong. The husband became profligate, and his wife left him. Then, after a year or so, ugly rumours were circulated about her. Finally, it was proved beyond question that she made a clandestine excursion to a neighbouring village in company with another man, that much rum was consumed on the occasion, and only after three days of this carnival did the guilty parties return to their respective homes. Now, of course, their marriage is practically dissolved, and she is a ruined and abandoned woman. The husbands are undoubtedly generally to blame, for married women, comparatively speaking, seldom go wrong unless deserted by their husbands.

I will close this section of the subject by narrating an amusing case of attempted divorce. A church-member of indifferent character applied to his pastor and deacons for separation from his wife. When asked the ground of this action, he explained that his wife was not of a religious nature and could not be induced to become a communicant. And, moreover, his own religious character was imperilled by her influence and example. He was, he was happy to say, as yet strong in Christian faith and hope, but in danger of being weakened and contaminated by association with his worldly wife. It was, he maintained, the Christian's duty to guard and foster his spiritual life and to avoid moral perils, finally alluding to the words in 2 Cor. vi. 14, "What fellowship have righteousness and iniquity? or what communion hath light with darkness?"

The pastor, knowing the man with whom he had to deal, reminded him that the mistake lay in his not having considered her character before he married her; that now the only help for it was to let his light shine stronger and brighter to dissipate

her darkness, and to make his goodness more conspicuous, that it might neutralize her evil; or, in case of that failing, he suggested that "what can't be cured must be endured."

The Malagasy are fond of their children, but it is easily seen that boys take precedence of girls in the estimation of their parents. Many unprincipled people have no regard for the future of their daughters, but when they reach a marriageable age, make them feel it is time they were off their hands and so practically drive them to evil courses for maintenance. The most scandalous case of this nature came to my knowledge a few weeks ago. A certain girl was strikingly attractive in face and form; her parents were fully aware of the fact, but instead of shielding their offspring from temptation, traded with her beauty, letting her out to hire as a concubine to gay young men. This sort of thing went on for two or three years, when disease appeared and ravaged her face, once so fresh and fair. Now she is a complete wreck, whose brief and dishonoured career must soon close. I make no comment on the conduct of such detestable and infamous parents.

II.—SOCIAL CONDITIONS. We now come to the wider subject of social conditions. The Malagasy are bright, cheerful and reasonable, and often win the admiration and affection of Europeans sojourning among them. Inconveniences and discomforts do not perturb their serenity of mind: they seem insensible to circumstances. They are loving in disposition and easily grieved by injury or neglect.

Families cohere in a remarkable fashion, so that offences or favours to individuals are participated in by all. The strength of affection is realized at the *Fandroana* (Annual festival), when all the members of the family, scattered far and wide, assemble at the old home and take their part in the time-honoured ceremonies. Remoter relations send tokens of remembrance to each other, and any omission of such correspondence is held in the most serious light. This sensibility is a fine quality in the Malagasy character; the bonds of family affection are strong and deep. Parents are much honoured, and when old and infirm are treated with thoughtful care. The utmost is done to prolong their lives, although no longer capable of self-support. The sick too are lovingly tended, and all within their relatives' power is done to alleviate suffering.

The Malagasy are, as I observed, exceedingly polite. Should a stranger be seated by the wayside, no one thinks of passing without asking leave of way. But this courtesy is carried to a degree bordering on insincerity, for they invite a casual acquaintance to a meal in their house, when neither party has the slightest thought of the invitation being accepted. It is merely a civility.

The kindliness of the people is seen in the interchange of such good offices as the lending of money, ornaments and clothes for special occasions. Any showy or superior garment is in constant requisition, and the possessors are so good-natured as to readily comply. Should they be embarrassed for money, they simply fall back on their friends and borrow without giving security. Sometimes, alas, loans are forgotten and disclaimed, and then ensue strife and litigation. The Malagasy always work to more advantage in union and concert; hence all the available hands in a village combine in the digging of each other's rice-fields and in the building of houses and tombs.

On the occasion of any conspicuous good fortune, or restoration from illness, the family get up a general rejoicing, engaging musicians, and providing good cheer for the collected crowds. Numbers are felt to sustain effort, to increase joy and abate grief; hence in all works of magnitude, matters of difficulty, or crises in domestic history, they amalgamate with their neighbours.

Charms.—The Malagasy are steeped in superstition and have a profound belief in witchcraft. No village is free from supposed witches, who are said to take their walks abroad at midnight to visit the tombs, on the top of which they dance and revile the dead. They are said to be mainly elderly females of sinister aspect, joined by young women of bad character, with occasional male associates. They sometimes let loose the cattle from the folds, and in a nude condition, it is said, bstride the animals. No attempt is made to recognise them, for their faces are hideously disguised by streaks and spots of white paint; and it is solemnly believed that capture is physically impossible, since they become intangible when closed with. They are in league with the powers of evil and, if actuated by malice, can induce misfortune, sickness and even death.

They are a common terror, from being so near and yet so unknown; many ailments and calamities are attributed to their agency. At the dead of night they knock at the doors of neighbours they wish to injure, and should there be any one sick, they howl most dismally around the house. Should the patient be in a critical condition, this is deemed an ill omen, and panic produces collapse.

A man one day asked me to remove a troublesome tooth, but when I commenced operations, he insisted on the bystanders going away lest, as he whispered aside to me, any malevolent person should bewitch his other sound teeth. Another individual came to me with a festered finger, and on my enquiring as to the nature of the hurt, he looked confused, but afterwards

informed me that it had not come by fair means. His story ran thus: One day he happened to be taking a meal with his mother-in-law, who was suspected of witchcraft. Suddenly turning round, he caught her dropping some white powder in his food. Of course he did not eat any more and immediately left the house, but the mischief was done. Two days after appeared this unsightly sore, which resisted all ordinary treatment.

Another man had two children grievously afflicted with epilepsy. One had many times fallen into the fire and got badly burnt; the other was oppressed with temporary moods of madness, when force and fetters were necessary to restrain him from violence. The ill-starred father repined at his hard lot, a result, he had not the slightest doubt, of the antagonism of an old unnamed enemy.

The chief man of this village was one morning greatly shocked by the ominous preparations made outside his house on the previous night. He had probably excited the malevolence of some of these '*mpamosavy*,' who, to spite him, had killed a black fowl, skewered it on a stick, and there beside it placed all the symbolic arrangements for death, the bath for washing the corpse, the winding-sheets and the bier. Many were alarmed and momentarily expected his dissolution. The agents in this affair were not discovered, although in all probability they were among the crowds who went to sympathize with the distressed family.

The '*mpisikidy*' (medicine-men) are the counterpart of the *mpamosavy*, and are credited with potency to destroy their machinations and thus protect the persons and property of the people. Malagasy laws forbid the practice of the black art, yet, on account of the secret fears lurking in the minds of the people, the *mpisikidy* are still much resorted to. They profess to be able to control the elements, especially to guard fields of rice from the destructive hail-storms, only, however, exercising their beneficent power when it is made worth their while. They are not as numerous as the *mpamosavy*, yet exist in considerable force. It is a reasonable hypothesis that they may be the husbands of the *mpamosavy*, who thus together create and supply the demand by trading on the superstitious fears of the people.

Their charms are periodically renewed by exposure to the influence of the invisible world, and anointing with castor-oil and honey, which process is followed by a rite in which a fowl or sheep is killed and offered to the powerful deities. The early part of a special month in the year (Alakaosy) is most favourable for the revivification of charms. These consist of many curious articles—some conical ones carved from bone, the tips of cows' horns, strings of coloured beads, and pieces of sacred wood stuck with long pins. The 'love-charm' (*ody fitla*)

gives the wearer control over the affections of any person he desires, and is chiefly in requisition by unfortunate ill-looking youths in search of a wife, or by profligate characters seeking to seduce their prey. Another called *fanidy* ('to shut') is carried by traders in their journeys to protect them from crocodiles, by locking the reptiles' jaws when crossing rivers, and also to preserve from the destroying lightning.

These and similar charms are the merchandise of the *mpisikidy*. The sick are borne about in litters to one after another of these impostors. Incantations are sung, and chance arrangements of beans consulted; but previous to anything definite as to prognosis or treatment being communicated, the patient is required to make a deposit of money (the amount corresponding to his means, or to the gravity of his disorder), otherwise the scheme will be broken, and the question of cure remain unsolved. Should his money be insufficient, domestic articles of crockery, clothing, spades or fowls are suggested, and until these are forthcoming the benefactor declines to proceed.

In order to precipitate decision he implies that the patient is in a serious condition; still he is in a position to effect a complete cure should the agreement be concluded. At the same time he solemnly vows that, if the patient die notwithstanding his treatment, he will undertake to bury his corpse in the hair of his head! This generally establishes confidence and brings down the required sum, after which the mysterious business is proceeded with. The money is dropped in a mug of water, each of the charms is gently rubbed on a sacred stone, which contracts their healing virtues, and is then also dropped into the water, where it soaks for a few minutes. This is the potion which will effect instantaneous deliverance from the malady. Certain articles of food, such as salt, cayenne, vegetables and fowls, are forbidden. Broken pottery or an egg is directed to be carried to the cross-roads, as symbolical of the exorcised distemper, which is transferred to any persons venturing to touch it. Consequently, such things, which are frequently to be seen, are regarded with fear and horror. Here is an actual scene. The child of a wealthy man was seriously ill, and the nearest *mpisikidy* was fetched to try what his art could do. After an ostentatious examination he looked grave, and on being asked his opinion, stated that the child was in a precarious state and required prompt attention, otherwise he would not be responsible for the issue. When implored to undertake the case, he consented to do so for the consideration of seven dollars. He began then to feel hopeful of the little patient's recovery, but had the means of obtaining certainty on that point. He accordingly produced a small bag containing a lizard, motionless and apparently dead. It was explained that

should the lizard make any movement while he uttered the spell, it was a sign that the crisis was over, and the life would be spared. Nevertheless, to ensure the augury being perfectly reliable, the money must be there and then placed in his hand. This being agreed upon, he proceeded to mumble his spell, in which occurred the sentence: "Remove, O powerful deities, this disease, for such is your high prerogative. Wherever it may have its seat, in bones, flesh or hair, cause it to be instantly and finally expelled;" at the same time burning bitumenous wood underneath the bag containing the lizard. After a few moments the pungent fumes and heat gathered strength, and the lizard, becoming uncomfortable, made frantic movements. The family, all the while looking on in deep concern, thereupon screamed with delight, clapped their hands and exclaimed, "Wonderful, wonderful indeed!" The money was slipped into the enchanter's hand by the father, with tearful thanks for the superhuman deliverance. They were then calmly assured that all danger was past, and the patient would be rapidly restored to health. But, alas, after a short time, alarming symptoms set in, the diviner was again sent for, but having heard how things were going, he had already decamped. In a few hours the child died.

A similar fraud was recently practised at a village near Ambôhibelôma. A distinguished-looking man from the west, with remarkable powers of magic, suddenly appeared among the people. The small-pox epidemic had been raging in those parts, and the man professed to have a reliable charm against the dire disease. The fee of three shillings a head was to be paid in advance. He regretted to say that this sovereign remedy was only efficacious in the cases where the fee had changed hands. He personally inclined to leniency and charity, but in this matter it was a physical impossibility, and so it would be a waste of their time and a mere pretence on his part, unless the money were paid. When all preliminaries were gone through, he began to gesticulate wildly and work himself into a fearful frenzy, at the same time muttering incantations, in which occurred the names of the famous Malagasy idols, "the twelve sacred mountains," and the names of God and Jesus Christ (a concession to nominal Christians). He then commenced scratching the faces of his patients with pieces of broken bottle, until the blood trickled freely. They were then each given a piece of charmed wood and instructed to bathe in clear water with it by their side; they would be then for ever proof against small-pox. In that one village and neighbourhood he thus operated on thirty people, for the most part at three shillings a head. During the following year, however, the disease broke out again with even greater virulence, and

many whom he had inoculated were the first to succumb. But, nothing abashed, the archdeceiver turned up again, admitted that there had been something wrong in the former arrangements, but asked for another trial (with a renewed fee), stating that his charms had for three months past been lying in a sacred spring, and their potency was now unquestionable.

Another itinerant sorcerer had a talisman for premature grey hair, which would act instantaneously, or in the course of a day at the most. The money to be paid was one and four-pence apiece, which the credulous simpletons crowded to put into his hand, and to receive the new hair-elixir. When, however, he was approached the next morning for more explanations, he was not to be found. The chagrin of the poor people is better imagined than described.

Malagasy women are full of superstitious fears and fancies. Before beginning any considerable piece of work, such as spinning a *lamba* (cloth), many consult the diviner as to a lucky day to commence. An auspicious one on which to wind up the work is also fixed upon, and the business is hastened or slackened accordingly. Unless this matter of proper times and seasons is attended to, there is sure to be some mishap; either the condemned article will remain unsold or fetch a poor price.

Some children in the more heathen parts are not allowed to wash their bodies, or have their hair cut, until they are almost grown up. Such foreign practices are imagined to have an injurious effect on the health, and even to imperil life. With these accretions of filth, flavoured by anointings of castor-oil, and with their hair long and matted, they look very unwholesome objects. The wonder is that any survive such barbarous treatment.

When any one dies, bullocks are killed, and a portion of the beef is given to each person present at the funeral. The Malagasy generally have no objection to this meat; but some are so dominated by superstition that they decline to see the corpse, and only make a compromise by eating of the meat in a neighbour's house. After the meal they scrupulously bathe and change their clothes before entering their own home. This is to avoid giving offence to their idols, who have a strong aversion to meat killed on such occasions, and who would resent the insult and cease to protect them, should their prejudices be disregarded. When death takes place in a home, the relatives lose confidence in their household charms, which are exchanged for new ones more potent and satisfactory.

The Malagasy are singularly lacking in the æsthetic faculty, and are stolidly insensible to the glories of nature. The purple blushing dawn, the fleecy dazzling clouds floating in the blue

sky overhead, foaming cataracts roaring at their feet, solitary mountains lying in gloomy shadow, lurid lightning and crashing thunder, magnificent sunsets firing the horizon, the solemn star-lit night—these attract slight attention and make very little impression on their imagination. But it is altogether different with extraordinary phenomena, such as a comet or an eclipse, for these excite their superstitious fears. A few months since, at a certain village, the moon was discovered to be eclipsed. Attention was called to the fact, and without a moment's delay the people poured out of their houses to gaze upward in wonder and terror. They apprehended some stupendous catastrophe, and with loud heart-rending cries besought the unseen powers to protect them and to avert the danger.

The Vazimba, or aboriginal inhabitants of Madagascar, said to be of low stature, with disproportionately small heads, and whom the Malagasy still hold in superstitious fear, are conceived to be the water-deities, having their abode in wells and streams, so that people, after quenching their thirst, twist a blade of grass to entangle the evil spirit possibly communicated by the water. Should this precaution not be taken, many would expect to be suddenly ill with an internal complaint of a distressing nature. These Vazimba, who occasionally appear in hideous forms, possess preternatural power, and unless constantly propitiated become malevolent and vindictive. Consequently, when overtaken by misfortune, the people appeal to the Vazimba for succour and deliverance. A child of heathen parents was ill. The father, amid great demonstration of grief, conformably with an ancient custom, killed a cock, and while it was writhing in death, exclaimed, "O powerful Vazimba! heal my son, for behold, death is undergone and borne away by this fowl."

In a backward part of my district is a swamp, where grow some banana trees. The spot is held in awe by the natives, since the Vazimba have their abode in the deep water. Consequently, no one ventures to appropriate the fruit without first dropping a piece of money (considered to be its value) into the water, where it is received by the invisible deities. These honoured aborigines have a strong dislike to swine's flesh, therefore those who eat pork are warned against bathing in the sacred waters. The penalty for such an offence is a shrivelled leg or an incurable disease. The same curse befalls any one who stumbles against the ancient tombs where they are supposed to lie buried.

The *mpisikidy* sometimes tells the simple people that their recently departed relative is pining for some tobacco, whereupon it is supplied without delay, being placed opposite the head at the top of the grave. A sum of money for future sup-

plies is often added. It is believed that if this provision be denied, the family inheritance will dwindle, or even the life of the impious representative will be required. Occasionally persons in the article of death have desired that a sufficiency of rum be placed within their tomb.

Sterility is the greatest calamity that can befall Malagasy women. Their husbands become disappointed and discontented and sometimes discard them, in which case they are left with no one on whom to expend their affection, and when old are left unprovided for. Thus no desire is stronger, and no supplication more fervent, than that they should become mothers. There is an interesting custom even now practised in some of the out-of-the-way places. At public rejoicings the trunk of a banana tree is thrown to the feminine part of the company, for possession of which they frantically struggle, deeming it potent to ensure maternity.

There are certain mountains considered sacred. To these, solitary women repair in order to incline the heavenly deities in their favour. Should they happen to come upon a boulder of rock with a deep indentation, they immediately collect some pebbles, fall back a few paces and try to pitch them into the hole. If they succeed after a few attempts, they are convinced that their request is regarded favourably, and thereupon vow that when they are delivered of the child, or come into possession of the boon, they will revisit the holy place with votive offerings. This they do, fowls are brought and killed, and the head and feet are fixed up near the spot, which is anointed with fat.

Another similar practice is the following. Outside a certain village is an oblong stone fixed upright in the ground, the memorial of some distinguished progenitor. Almost every day girls from the neighbourhood go to consult it concerning their lot in the bearing of children. They retire a few yards from the stone, solemnly close their eyes and, sometimes trembling with agitation, grope towards it. If they have the good fortune to lay hold of it without difficulty, their relief and joy are unbounded, since it is an infallible indication that their desire is granted. Thereupon they besmear the stone with fat prepared for the purpose, also engaging that when the inestimable gift comes into possession, they will return to pay high honours to the propitious Vazimba.

On a certain occasion a woman went to the native teacher in deep distress. She had a bad ulcer on her leg and seemed to have an inkling of the cause. She explained that her rice-field unfortunately lay in a solitary place, near the abode of Vazimba. She of course went there frequently to look after it, but thought that perhaps the God whom the Queen and the teacher alike

worshipped suspected her of paying secret devotion to the Vazimba, and so sent her the foul and troublesome ulcer as a retribution. She implored the teacher to assure his God of her innocence, as she had not the remotest intention of praying to the Vazimba.

The weekly market is quite a Malagasy institution. It is held on open ground near one of the larger villages, where people have their regular stalls, protected from rain and heat by immense canvas umbrellas. There is a rough arrangement whereby the cattle and pigs are kept to the outskirts of the enclosure, poultry, rice, vegetables and fruit to one division, calico, ornaments, tools and drugs to another, and so on. Butchers pursue their calling in open day, and the hungry dogs fighting for the offal often present a ghastly spectacle. Here is seen a motley, miscellaneous crowd—people of all shades of complexion, from olive to ebony; of all ranks and conditions—nobles, Hova, 'black people' and slaves; of all qualities and hues of dress; the white of the ordinary *lamba* or outer dress relieved by rainbow colours, and many people also in dirty rags; all descriptions of faces and figures, bright, handsome and stalwart, or sinister and deformed.

The vain here strut about to display their superiority in ribbons, boots and ornaments, suggesting the manner of the peacock, and hardly deigning to reply to the salutations of their inferiors. Here people bargain for their weekly supplies, gossip with acquaintances, air themselves in the bright sunshine, and sate their curiosity by examining the assortments of native and foreign produce. The hum and din can be heard for a long distance, and the flecked mass of white is seen for many miles.

That is the innocent and agreeable aspect of attending these country markets, but it has a darker side. Notwithstanding the explicit regulations against the manufacture and sale of rum, there is a large illicit traffic in the same. I have no hesitation in saying that the local governors and leading men are responsible for this infraction of the laws. In fact, some are known to have vested interests in the rum consumed in the markets under their jurisdiction, and so decline to take any measures for its suppression. A great farce was enacted recently in a market near Ambohibeloma. The governor and his associates read a proclamation forbidding the drinking of spirits, but almost immediately afterwards they were seen to retire to a quiet spot outside the enclosure, where they were soon deep in their potations. The gross and glaring inconsistency excited the ridicule of the populace.

The Malagasy are sensitive about theft. It is deemed one of the worst of crimes. Should a pickpocket be detected in the market, the hue and cry is raised, the thief is mobbed, rough

hands are laid on him, and unless he is promptly taken into charge by the authorities, he falls a victim to cuffs and blows. I myself saw the corpse of a man, said to have stolen a sum of rather more than a penny. Another, a notorious rascal, met summary treatment at a market, where he was caught driving off some pigs that he had omitted to pay for. He was pursued and stoned by the mob, but when after a few hours it was noticed that he still breathed, a blunt knife was used to despatch him.

The market is also the hunting-ground of accomplished villains, who claim prestige and authority to harangue the people and insinuate themselves as intermediaries in disputes about property or possible law-suits. There are many such local vampires in these districts, who have the hardihood to identify themselves with our churches, much to the confusion and discredit of the good cause. One conspicuous scoundrel told me, with a nonchalant air, that he had been educated and taught higher mathematics by a certain honoured missionary, and did not seem in the least sensible of his hideous abortion of character.

Another youth of quality, with an engaging countenance, who, forsooth, had also passed through our schools, was discovered to be carrying on a quiet traffic of a revolting nature. He ensnared young girls by seduction, lured them away to a distance and disposed of them by private sale. This same individual, at another time, went with a companion to a neighbouring village and was put up at the best house. During the night he concealed charms under the bed, and in the morning called public attention to his discovery of the same, and emphasized the fact that idol worship was abolished and illegal, and Christianity the established religion of Madagascar. Preparations were then made to bring the owners to justice. They protested and denied all knowledge of the said charms, but appearances were too strong against them. Ultimately, to avoid driving things to extremity, they agreed to a private arrangement by which the villain put many dollars to his account.

A good deal of licentiousness is also practised at these markets. Immodest girls use devices to attract young men. There is considerable license in conversation, which tends to excite evil propensities. Every incentive and facility to evil is offered, and such occasions are consequently a severe test of character. For this reason many virtuous women abstain from attending markets at all.

There is widespread supineness and corruptibility on the part of responsible persons in cases of crime. Occasional murders, attended with circumstances of cold-blooded cruelty, have come under my notice; yet in hardly a single case

has any clue been found, or at any rate been made known. A great deal of commotion and make-believe goes on for a day or two, then all gradually subsides, and the enquiry is at an end. Schemes of social improvement, fair and far-reaching as the rainbow, are enthusiastically undertaken, but, through lack of application, prove almost as transient. Such an atmosphere of things is often depressing and irritating to the European. It gives me pain to cast these reflections on the local administration, but I undertook to relate my real unmodified impressions. The Malagasy character, as I have seen it, makes no approach to purity in private relations or to probity in public life, except in the degree of personal reception of Christianity.

Only as these people embrace the principles of the Bible, become impressed with the moral nature of God, and submit to the teaching of Jesus Christ, do they develop honour, goodness and benevolence; and it is only under these conditions that the stored-up evil is eliminated from their moral constitutions. Christianity alone is competent to dissipate the darkness of ignorance and the dank vapours of superstition, to expose and prevent injustice and wrong, to produce honourable home-life and parental solicitude for the welfare of children. And since Christianity has been embraced by the Malagasy people, who are, by systematic education and ever deepening church life, being liberated from the empire of evil and brought under the dominion of the Gospel, such beneficent results are being gradually realized. The "Sun of Righteousness" has arisen over Madagascar, rolling back the unwholesome darkness and radiating light, health and joy far and wide, purifying and transforming every phase of life. Stocks and stones are being forsaken, and morning and evening in thousands of homes rises to heaven the incense of sincere adoration; and places once dishonoured by idols and cruelty are made to ring with praise to the one "ever-blessed God."

The Malagasy are highly susceptible to moral improvement. Like those field herbs which, under conditions of scientific culture, develop form, tint and fragrance, many of the people even in these country districts become under the supernatural influence of Christianity high-minded, true-hearted and eminently loveable, excelling in the things "pure, lovely and of good report." And these forces, still operating with ever increasing momentum, make us anticipate for the Malagasy a goodly and glorious future, when ignorance, superstition and wrong shall be everywhere overthrown, and knowledge, righteousness and peace be established amongst them for ever.

JOHN H. HAILE.



AN IMERINA VILLAGE.

IN the preceding paper Mr. Haile has given a very full account of village life in the central province of Madagascar; but one point he has overlooked: he has said hardly anything about the external aspects of a Hova village. I think therefore that it may not be an unfitting addition to his paper, if I reproduce the substance of an article contributed a few years ago to an English magazine, in which an attempt was made to describe as clearly as possible what a village is like in these central regions of the island. I will only add here that every different province in Madagascar has its own style of village and house, and so what is now described is only applicable to the people of Imérina, the central province, and the home of the Hova Malagasy.

Probably one of the first things that a new-comer would notice is, that many of the villages are built on the tops of high hills, and are consequently rather difficult to approach. In ancient times almost every village and town was built in such a position; and although many of these hill-tops are now deserted, and the villages are being built either on the plains or on the lower rising grounds, numbers of them still remain inhabited; and the people who live in them must have a weary climb every evening as they go home from their work in the ricefields, or return from a neighbouring village or market. Even the capital city, Antananarivo, is built on the top and the sides of a long narrow ridge rising about 600 feet above the plain below. The old capital, Ambôhimanga, is on an equally high hill, and so are most of the ancient and famous towns and villages. Some of these hills rise to 700 or 800 feet in height; and a few years ago I had to climb up to a village called Vohilena, which is built on a tremendous hill, no less than 1,500 feet above the valley at its foot. Never shall I forget my ascent up its steep side in the darkness, without a guide, and unable to find any path in the woods that cover its slopes. But it will be asked, Why did the people choose such inconvenient places to live in? The answer to this question may be given in two words: for safety. A hundred, or two hundred years ago—and no one can tell how long also before that time—there was no strong central government in Madagascar, but the whole country was cut up into a number of little chieftaincies; and in all the larger villages was a chief or petty “king,” who was often at war with his neighbours, and attacked and plundered their villages whenever he could get a chance. So each village was built on a high hill for greater security against enemies, and so that stones and spears could be hurled down on an attacking force.

But besides the safety gained from these lofty positions, all these old villages were also carefully defended by wide and deep fosses dug all round them. These fosses are usually three or four in number, one within the other, and sometimes more numerous even than this. Most of them are cut from 20 to 30 feet wide and as many feet deep, although sometimes they are much deeper; and before guns and cannons were brought into the country, they must have formed very effective defences against an enemy. With their steep sides, dug in the hard red soil, they

often look almost like a railway cutting through reddish rock. But although so deep, these trenches are not full of water, for this is always drawn off by another trench leading down the hill-side. They are, however, of course damp, and good soil gradually increases there, so that ferns and wild plants grow luxuriantly; and the bottom of the fosse therefore forms a plantation, in which peach, banana, guava, and other fruit-trees are cultivated, as well as coffee, arums and a variety of vegetables. Tall trees of other kinds also grow there, so that these *hady*, as they are called, are often by far the prettiest feature of the village. On many hill-tops in Imerina, where no villages now exist, these *hady* may be seen from a great distance, scoring the hill-sides, and showing that in former times a village crowned the summit.

In some parts of the central provinces of Madagascar there is no deep trench, such as those just described; but the village is protected by a dense and wide plantation of prickly-pear (*Opuntia Dillenii*, Haw.). This shrub is armed all over with spines and prickles two inches long, sharp as a needle and somewhat poisonous. The thick, fleshy, twisted stems, the gaily-tinted flowers, and even the pear-shaped fruits, are all armed with spines and stinging hairs; and it is no easy matter to get rid of the minute little needles, if they once get into one's skin. So it is easy to see that a hedge of this prickly-pear, several feet wide and eight or ten feet high, is a very effectual defence against enemies or robbers, especially when it is remembered that the majority of people wear no shoes, and so have no protection for their bare legs and feet. In many places, instead of prickly-pear, the fence round the village is made of *tsiäfakömby* ("impassable by cattle"), a shrub with bright yellow flowers and full of hook-like prickles.*

Now let us get up into the village and see what it looks like. Crossing the deep *hady* by a kind of bridge of earth, we come to the entrance or *vavahady* ("mouth of the fosse"). This is generally a narrow gateway formed of roughly-built stonework; and on its inner side, in a groove, is a great circular slab of granite, from six to ten feet in diameter, for rolling across the opening, so as to quite close it up. But for many years past, in most villages, these great slabs of stone have been unused, and the grooves are filled up with dust and dirt, so that it is not very easy to move the stone out of its place. In many villages the great stone lies on the ground, and the children play games upon it, showing that for a long time there has been no war in the interior of the island, but people have been able to live in security and peace, "none daring to make them afraid." In some cases, instead of a door at the gateway, a number of short poles are hung from a cross-piece at the top, which passes through a hole in each of them; and one has to hold up two or three of them in order to pass through. This kind of gate is chiefly for the purpose of preventing the pigs and sheep from getting in and out of the village. In some parts of Imerina, to the west and north, where there is frequent danger from roving parties of robbers, the villages are still carefully guarded, and many of them have a treble gateway, with three pairs of thick wooden doors, and connected by a kind of tunnel.

Here, however, we are at last inside the village, and we see at once

* The Mysore thorn, *Casalpinia sepiaria*, Roxb.

that it is a very different place from an English village, with the turnpike road passing through it, its trim houses and cottages with neat gardens and flower-beds, its old grey church, and its churchyard with elms and yews overshadowing the graves.

There is nothing at all like this in our Malagasy village. There are no streets intersecting it; and the houses are built without any order or regularity except in one point, namely, that all the old-fashioned houses are built north and south, and that they have their single door and window always on the west side, so as to be protected from the cold and keen south-east trade-winds, which blow over Imerina during the greater part of the year. The houses are mostly made of the hard red earth, laid in courses of a foot or so high. They are chiefly of one storey and of one room, but they generally have a floor in the roof, which is used for cooking, and are sometimes divided into two or three rooms by rush and mat partitions. On the east of Imerina, near the forest, the houses are made of rough wooden framing, filled up with bamboo or rush, and often plastered with cow-dung; and in the neighbourhood of the capital a great many houses are now built of sun-dried bricks in two storeys, with several rooms, and often with tiled roofs. These, however, belong to the richer people.

Here and there throughout the province one comes across a village which was formerly the capital of a petty kingdom, where we find a number of strong and well-built timber houses. Such a place is Ambôhitritankady, one of the villages in my mission district. I was astonished at my first visit to find such a place. It is on a high hill, and in the centre of the village are ten large houses of massive timber framing and with very high-pitched roofs, with long "horns" at the gables, arranged five on each side of a long oblong space sunk a couple of feet below the ground. Here, in former times, bull-fights took place, and various games and amusements were carried on. One of the houses, where the chief himself resided, is much larger than the rest, and the corner posts, as well as the three great central posts supporting the ridge, are very large massive pieces of timber. It was all in one great room without any partitions, the whole being well floored with wood, and the walls covered with neat mats. Such fine old houses are now, however, becoming very rare and are being fast superseded by much less picturesque, but perhaps more comfortable as well as cheaper, houses of sun-dried or burnt brick.

The houses of most villages, as just mentioned, are scattered about the place in a very irregular fashion. There is no privacy or retirement about them, no back-yard or outbuildings, although occasionally low walls do make a kind of enclosure round some of them. Here and there among the houses are square pits, five or six feet deep and eight or ten feet square, called *fahitra*. These are pens for the oxen, often very fine animals, with enormous horns and great humps, which are kept in them to be fattened, mostly for the national feast of the Fandroana ("the bathing") at the New Year. As may be supposed, these are very dirty places, and in the wet season are often just pools of black mud. Indeed the village, as a whole, is anything but neat and clean. All sorts of rubbish and filth accumulate; there are no sanitary arrangements; frequently the cattle are penned for the night in a part of the enclosure, and the cow-dung makes it very muddy in wet weather, and raises clouds

of stifling dust when it is dry. Frequently the cow-dung is carefully collected and made into circular cakes of six or eight inches diameter, which are then stuck on the walls of the houses to dry. It is afterwards used as fuel for burning off large slabs of the hard gneiss rock, which are employed by the people in making their tombs.

Besides the fattening pens for cattle, we may often see open the pits in which the people store their rice. These are bottle-shaped holes, from eight to ten feet deep, dug out of the hard red earth, and will contain a large quantity of grain. They are closed up by a flat stone and covered with earth, so it is not easy for a stranger to know where the rice-store is. In former times these pits were now and then used as places of refuge and even of worship by Christian people in the time of persecution; and occasionally those who had offended the Sovereign were cruelly put to death by being placed in the pits, which were partly filled up with earth, boiling water being then poured over them until they were killed.

In the centre of the village may often be seen the large family tomb of the chief man of the place, the owner of the land and the rice-fields in the neighbourhood. This is a structure of dressed or of rough stonework, from twelve to twenty feet square, and about six to eight feet high. Generally it has two or more stages diminishing in area, and frequently at the east end is a kind of headstone, in modern tombs sometimes with a name and date cut upon it. These tombs are vaults made of great undressed slabs of blue rock, partly sunk under ground, and with stone shelves on which the corpses, wrapped in silk cloths, are laid. The steps down to the vault are always on the west side, and the door is a massive stone slab turning on pivots at the top and bottom. In the case of people who are Andriana, or of noble birth, the stonework is surmounted by a small wooden house, with thatched or shingled roof and a door, but no window. This is called *tràno mäsina*, "sacred house," or *tràno manàra*, "cold house," because it has no hearth or fire. In some villages, where the people are almost all of high rank, a line of these tombs, with their little wooden houses, may be observed.

Seen from a distance these Malagasy villages often look very pretty and picturesque, for "distance lends enchantment to the view." Round some of them tall trees, called *àviàvy*, a species of fig-tree, grow, which are something like an English elm in appearance. In others one or two great *amòntana* trees may be seen; these are also a species of fig-tree, and have large and glossy leaves. A beautiful tree called *sàhana* is also common, with hundreds of large pink flowers; and in the fosses the *amiana*, a tall tree-nettle with large, deeply cut, and velvety leaves, with stinging hairs, frequently grows. Many kinds of shrubs often make the place gay with flowers; but these all grow wild, and the people have not yet learned to plant flowers in beds and gardens for their own pleasure.

But what are the Hova children like? how are they dressed? and what do they play at? They are brown-skinned, some very light olive in colour, and some very dark. As a rule, they have little clothing and no caps, shoes, or stockings, and are usually very dirty and uncared for. On Sundays and on special occasions the girls are often dressed in print frocks, and the boys in jackets of similar material, and with clean white calico *lamba* over all; but on week-days a small *lamba*, of soiled and

coarse hemp cloth, often forms almost their only clothing. Of course the children of well-to-do people are sometimes very nicely dressed, although they too often go about in a rather dirty fashion. I am here, however, speaking of the majority of the children one sees, those of the poorer people of the village. One day some of us went for a ride to a village about two miles away from Ambòhimànga. A number of children followed us about as we collected ferns in the *hady*, and as a group of seven or eight of them sat near us, we calculated that the value of all they had on would not amount to one shilling!

Poor children! they have little advantages compared with English boys and girls, and they have few amusements. They sometimes play at a game which is very like our "fox and geese;" the boys spin peg-tops; the little children make figures of oxen and birds, etc., out of clay; and the big boys have a rough and violent game called *mamely dia mônga*, in which they kick backward at each other, with their feet lifted almost as high as their heads. Perhaps the most favourite amusement of Malagasy children is to sit in parties out of doors on fine moonlight nights, and sing away for hours some of the monotonous native chants, accompanying them with regular clapping of hands.

One thing more may be noticed about our Malagasy village, and that is, that in almost all the larger villages of Imèrina there is now to be seen a building for Christian worship. In many places this is a rough and plain structure, made of clay or of sun-dried brick, often with no glass in the windows, and no pews or benches on the floor. Still, in these rude country churches God's word is read and preached, the love of Christ is made known, and some light is being shed upon the minds of the people, who are most of them still very ignorant and superstitious. In the neighbourhood of the capital, however, as well as in some other districts, many very neat and pretty village churches are now to be seen. These are nicely plastered and coloured, and often have tiled roofs and glass windows; there are low benches and clean mats on the floor, and some few have well-carved stone and wood pulpits, showing that the people have worked hard and done their best to make a building that shall be suitable for the worship of God.

Besides being used for Divine service on Sundays, the village church is also the school-house on week-days. Here may be seen, if we look in, a number of bright looking children repeating their *a, b, d* (not *c*), reading and writing, doing sums, learning a little grammar and geography, and being taught their catechism and something about the chief facts and truths of the Bible. And perhaps there is no more pleasant sight to be seen in Madagascar than one of the larger chapels filled to the doors on the annual examination day, with children from the neighbouring villages, all dressed in their best, eager to show their knowledge, and pleased to get the Testament or hymn-book or other prize given to those who have answered well.

Thank God there are now hundreds of such village churches and schools in Central Madagascar. May they soon be seen over all the provinces of the great island!

JAMES SIBREE. (Ed.)

ON THE DISCOVERY OF A SECONDARY REPTILE IN MADAGASCAR (*STENEOSAURUS BARONI*);

WITH A REFERENCE TO SOME POST-TERTIARY VERTEBRATE
REMAINS FROM THE SAME COUNTRY.

Extracted from the GEOLOGICAL MAGAZINE, Decade III. Vol. x. No. 347, May, 1893.

By R. BULLEN NEWTON, F.G.S.

THE Rev. Richard Baron, F.G.S., of the London Missionary Society, has sent to the British Museum some interesting reptilian remains from the Jurassic rocks of Madagascar, which he obtained during 1891 at Andrânosamônta village, a locality situated in the north-western part of the island. They were enclosed in a tenacious shelly limestone, so that before their examination could be proceeded with it was necessary to submit them to careful development and cleaning, a work which has been most ably carried out by Mr. Richard Hall, the Assistant Formator of the Geological Department. The fragments thus relieved represent some of the more prominent parts of a skull belonging to the same animal, comprising:—

- (1) An imperfect cranial rostrum, Pl. IX. Figs. 1 and 2.
- (2) An almost complete mandible, Pl. IX. Figs. 3 and 4.
- (3) Certain posterior parts of the cranium.

There is also a dermal scute, which although somewhat differently localized, viz. two miles south of Andrânosamônta, is presumed to be a relic of this same reptile, Pl. IX. Fig. 5.

In glancing at the main features of this animal we note its possession of a narrow and elongate rostrum, set with numerous alveoli slightly differing in size, and having a more or less circular periphery.

* * * * *

A consideration of these details [given much more fully and technically than here] proves conclusively that we are dealing with a reptile possessing Crocodilian affinities, and from its produced snout bearing a strong resemblance to the existing Gavial (*Gavialis*) of the Ganges, though differing very widely from it in other and more important characters. It is not till we go back much further in time that we find its congener among the Mesozoic Crocodiles forming the family of the Teleosauridæ.

* * * * *

Not finding its exact representative among the various species of *Steneosaurus*, I propose to regard it as a new form, and this chiefly on account of its very narrow and cylindrical rostrum, together with its marked undulation. The name proposed for the specimen is *Steneosaurus Baroni*, out of compliment to its discoverer.

The genus *Steneosaurus* has hitherto been restricted to British and European areas, so that the discovery of this reptile so far south as the Island of Madagascar is a matter of the highest interest when considering its geographical distribution. Sooner or later we shall hope to hear of its occurrence in the Jurassic rocks of the African continent, either in the neighbourhood of Mombasa, or further northwards among the Antalo Limestones of Abyssinia.

Horizon.—As far as can be ascertained, this genus has never been found out of Jurassic deposits. The few Molluscan shells associated with this new specimen tend to prove it of Lower Oolite age. These will be described elsewhere; in the meantime they may be referred to as (1) *Mytilus*, resembling *M. Tigrensis* (W. T. Blanford), from Abyssinia; (2) *Modiola*, similar in some characters to *M. imbricata* (Sowerby); (3) *Perna*, related to *P. quadrata* (Phillips); and (4) a new species of *Trochactæonina*.

POST-TERTIARY VERTEBRATES FROM MADAGASCAR.

The British Museum has just acquired an interesting series of vertebrate remains from a Post-Tertiary deposit in Madagascar. They were obtained by the Rev. James Wills, another member of the London Missionary Society, at Sirabé, in the province of Betsiléo, which is marked on Dr. Mullens's map¹ at 19°50' S. and 47°10' E. This locality lies in a region of extinct volcanic craters, and according to the map has an elevation at this point of 4930 feet above the sea-level. Thermal springs are also common in the neighbourhood; one at Bêtâfo registering 130° Fahr.

The bones are of a dark brown colour and were found in a swampy deposit of a more or less peaty nature, probably forming the floor of the same dried-up ancient lake mentioned by the Rev. R. Baron² as existing at this spot, and in which, some years ago, the late Dr. Hildebrandt³ discovered the skull and skeleton of a Hippopotamus. These remains have been identified as follows:—

Crocodylus robustus, Grandidier and Vaillant.*

Æpyornis maximus, Geoffroy St.-Hilaire.*

Hippopotamus Lemerlei, Grandidier and Milne-Edwards.*

The same species of Crocodile⁷ still abounds in the rivers of the country; but the *Æpyornis* and Hippopotamus are thought to be extinct, a view which may subsequently be disproved when more is ascertained concerning the unexplored parts of the island. The Hippopotamus bones indicate an animal of rather small dimensions, representing an intermediate form between the ordinary *H. amphibius* and *H. Liberiensis*, a pygmy species indigenous to the rivers of Western Africa.

It may be of interest to mention that sixty years ago Sir Roderick Murchison⁸ announced to the Geological Society the discovery of a Hippopotamus tusk and molar tooth in a recent conglomerate rock from Madagascar.

¹ On the Central Provinces of Madagascar. *Journ. Roy. Geogr. Soc.*, 1875, vol. XLV. p. 139, map.

² Notes on the Geology of Madagascar. *Q. J. G. S.*, 1889, vol. xlv. p. 308.

³ Skizze zu einem Bilde central-Madagassischen Natur-lebens im Frühling. *Zeitsch. Ges. Erdk. Berlin*, 1881, vol. xvi. p. 194.

⁴ Sur le crocodile fossile d'Amboulinsatre (Madagascar). *Comptes Rendus*, 1872, vol. lxxv. p. 150.

⁵ Notice sur des ossements et des œufs trouvés à Madagascar dans des alluvions modernes et provenant d'un oiseau gigantesque. *Ann. Sci. Nat.* (Paris), 1850, ser. 3, vol. xiv. p. 206.

⁶ Sur les découvertes zoologiques faites récemment à Madagascar par M. Alfred Grandidier. *Comptes Rendus*, 1868, vol. lxvii. p. 1165.

⁷ G. A. Boulenger. Cat. Chelonians and Crocodiles in the British Museum, 1889, p. 286.

⁸ *Proc. Geol. Soc. Lond.* 1833, vol. i. No. 31, p. 479. The specimen here referred to is in the Museum of the Geological Society, and is localised as 30 miles from Antananarivo. (see Ms. label).

No egg-shells were found associated with the *Æpyornis* bones, though their occurrence in the alluvial soil of the southern portions of the coast-line has long been recognized, some of them attaining to an enormous size. One example in the British Museum has a maximum circumference and girth of 36 and 30 inches respectively, with a liquid capacity of rather more than two gallons; it has been noticed by Capellini in the *Mem. Acad. Inst. Bologna*, 1889, ser. 4, vol. x. p. 16.

Although relics of an exactly similar fauna have been made known from contemporaneous beds nearer the sea-border, particularly at Ambolintsàtra, on the south-west coast, considerable importance is to be attached to their occurrence inland, and in the centre of an extinct volcanic area. It must not, however, be forgotten that, as previously stated, Dr. Hildebrandt's discovery of 1881 will rank as the first record of vertebrate remains from this special locality.

Lastly, allusion may be made to the occurrence of Tortoise remains in the Quarternary deposits of Madagascar. Two finely preserved carapaces of gigantic size have recently been added to the Geological Gallery of the British Museum. [These are referred to in another short paper in the present number of the ANNUAL.] They were obtained by Mr. Last, off the south-west coast of the island, in a cavern two miles from the sea, where they were found embedded in a loose, sandy soil. Mr. G. A. Boulenger¹ has identified them as *Testudo Grandidieri* (Vaillant),² an extinct species most nearly allied to the existing *Testudo gigantea* (Schweigger),³ of the Aldabra Islands, an uninhabited group to the north-west of Madagascar.

This comprises all the vertebrates at present known from the later Tertiary formations of Madagascar. [See, however, the very recent discovery of a Lemuroid mentioned later on in this ANNUAL; see "Natural History Notes."] There are, doubtless, many others yet to be disinterred, as the past fauna of this island could not possibly have been of so restricted a character as to consist merely of a Crocodile, a Tortoise, a Bird and a Mammal. Fresh discoveries are sure to follow on a more detailed investigation of these beds; and collectors would do well to remember that the history of *Æpyornis* still remains incomplete, as the skull and other important parts of its skeleton are not yet known to science. It is hoped that the chiefs of the Malagasy tribes may place no impediments in the way of explorers who are endeavouring to obtain these buried relics relating to so interesting a subject as the extinct fauna of their country.

EXPLANATION OF PLATE.

- Fig. 1. *Steneosaurus Baroni*, sp. nov. Palatal view of the cranial rostrum.
 " 2. Left lateral aspect of the cranial rostrum, showing its undulating character.
 " 3. Upper view of mandible, showing symphysis, splenials, etc.
 " 4. Basal view of mandible.
 " 5. Fragment of a dermal scute belonging to the ventral armour.
 Figs. 1-4 are $\frac{1}{2}$ nat. size. Fig. 5 is $\frac{1}{4}$ nat. size.

¹ *Proc. Zool. Soc. London*; 1893, part 4, p. 581.

² *Remarques complémentaires sur les Tortues gigantesques de Madagascar. Comptes Rendus*, 1885, vol. c. p. 874.

³ *Prodromi monographiæ Cheloniorum*; 1814, p. 58.

NORTH SAKALAVA-LAND.

CHAPTER I.—We meet at "Many-crocodiles" —Radâma's bold brother on the war-path—"Mr. George's" cannon at peace—The Governor takes care of the Defences—Blunt tools—Thriving in the dirt—Roofed for Conflagration—British India picking up the Profits.—How a Crocodile rose from the dead—Compulsory Education—Official diligence coolly stimulated—The myriad-mouthed Locust—On to Mojangâ.

OUR expedition to North Sakalava-Land was one of exploration. It was planned in the mountain capital of Madagascar, some four thousand feet above the sea-level; but we met at a town called "Many-crocodiles," on a mud-banked tributary of the big Bétsibôka river on the north-west coast. Part of the town is perched on an eminence of red earth, overlooking a swampy plain, and one of us stood on this hill admiring the wide prospect, as he watched for signs of his expected companion. A little before sunset he caught sight of a small caravan coming from the south and, hastening down to meet the traveller as he was being ferried across the last creek, was accosted with the inquiry: "Have you got those cigars for me?"; from which cool, Britisher-like greeting all discerning and sociable people will learn a little about our expedition's chief, as well as perceive that a thorough good-fellowship had been previously established between us.

"Many-crocodiles," which is English for the native *Màrovoay*, was once a Sakalava village. It was taken by the Hova when the famous Radâma I. led them from the mountains to the conquest of Ibôina, and shortly afterwards became the scene of a massacre, when the lurking aborigines fell upon its garrison and recovered their possessions. On hearing of this disaster, the king's bold brother, Ramanêtaka, whose name is perpetuated in that of one of the north-western bays, mustered a sufficient force and speedily made the Hova masters of the place again, chasing the Sakalava away to the north. Somewhere near the bay already mentioned, the fugitives took to their canoes and sailed to one of the Comoro Islands. But the Hova chieftain was determined to make an example of them. He followed them over the sea and compelled their absolute submission on the island of Mayotta. Once more in possession of Marovoay, the Hova erected a stockade, and dug a ditch around the sides of the hill not already protected by precipitous red cliffs. They also built a wooden house for the governor inside a fence of pointed stakes, and put up a number of post-and-wattle dwellings, thatched with grass, for the garrison.

A few years later there came an important addition in the shape of some twenty cannon, part of a present to Radama from "Mr. George," as an ancient of the country once spoke of His Majesty the fourth of that name. These were laid about the place within the stockade, and there they still reposed during the time of our expedition; but the ditch had been filled by its crumbling sides, and the stockade was rapidly vanishing beneath the cooking-pots of the neighbourhood. I once advised the Governor to clear away the rotting timber and mount his guns on carriages. He seemed shocked at the proposal, and gravely informed me that at the end of every despatch received from the Govern-

ment were the words, "Take good care of the defences." He had been intending for some time, he explained, to re-open the ditch and restore the stockade. "But do you really think," I asked, "that such things are of any use now-a-days, when your old Sakalava enemies are armed with muskets?" "No," he answered, "they are not worth much, but I am ordered to take good care of the defences; these are all the defences I found here, and I have not yet been told to prepare any better."

Slavish adherence to the letter of their instructions is a common characteristic of Malagasy officials, and a great hindrance to the island's progress. The Government has accomplished much for the good of the country, although hitherto, unfortunately for its reputation, chiefly in the interior, where few can see the result of its labour, and is willing to do more, but the tools it has to work with are worse than blunt; they are poorly tempered and seldom prove equal to that which is required of them.

Notwithstanding its wretched buildings and still more miserable defences, Marovoay is a thriving town. It thrives in the dirt, as the native children do, and according to the same law, being an instance of the survival of the fittest. Under the shadow of the hill on which the governor resides there is a crowding population, and a considerable amount of business is done. Looked at from above, the place is a rubbish heap of ragged brown roofs, with a streak of muddy water drawn alongside of it, a large number of the houses being covered with a shapeless, light thatch, which is only intended to serve until the next periodical fire, when it is expected to blaze away as fast as possible and leave the lath-and-mud structure below unharmed.

There is a busy community of Indian traders here, selling gaudy calicoes and trinkets to the swarthy Sakalava, with his plaited hair and shining spear, and stout American cotton, with various odds and ends of semi-civilised life, to the bargaining Hova, with their inseparable *lamba* and remarkable straw-hats. The emancipated African also comes to make his little purchase, when he has earned a trifle more than will supply the requirements of his digestion. Some of the squatting Easterns import an extraordinary medley of stuff, the sweepings apparently of shops in Bombay, and make a comfortable profit out of their wares, especially when dealing with native traders from the interior. The latter are often the agents of wealthy Hova and carry a general order to purchase everything that is novel. The return trade is chiefly in hides, which are brought from all parts of the country north-west of the Capital, and india-rubber, which is found in the wild forest lands. Occasionally there is a little surplus rice from the swampy plains. The hides and india-rubber are re-sold at the neighbouring seaport of Mojangà to representatives of English, French and American houses, some of whom have vessels of their own employed in conveying the produce to European markets.

Most of the Indian middlemen, or "Karàni," as they call themselves, carry on their business by means of dhows, which ascend the river with the rising tide, propelled by spoon-shaped sweeps, and then lie settled in the weltering mud to unload or take in cargo. Not long ago one of these dhows was being launched by her captain and three of the crew,

when the crocodiles made an onslaught and devoured the whole four. Truly the river is Marovoay indeed.

A personal adventure with one of the brute fraternity took place within a few yards of the same spot. He had been shot in the head as he floated near the canoe in which I was being slowly paddled in search of game, and had been hauled on board as a trophy. His skull was smashed by the bullet, and he lay at the bottom of the dug-out as lifeless as a log. About fifteen minutes afterwards there was a shout of alarm from my native companions. The log had come to life again. He had crawled beneath my legs, and was at that moment sprawling his filthy carcass over my guns and ammunition. Recovering vigour as he moved, he made a dash for the stern, sending the steersman bounding inboard over his head, and disappeared with a triumphant splash, leaving his captors shivering on the verge of capsize, and staring at each other in blank astonishment. Fortunately he was more anxious to escape than to revenge himself, or some of our number would probably have gone down with him as a feast for his sympathising relatives.

The day after the two divisions of our party came together, the Governor invited us to dinner, and on our way thither we looked into the Marovoay school, where we found nearly two hundred boys and girls at work in good order, under the care of two trained teachers from the Capital. The principal was receiving a salary of nine dollars a month from the Palace Church, while the assistant was paid by a levy on the chief members of the Christian congregation of the town itself. Of the two hundred scholars, over eighty could read, sixty-three could write more or less, and fifty-one were able to do a little arithmetic.

There are hundreds of similar schools in Central Madagascar, a fact which speaks loudly in praise of those who initiated their establishment. Roadless, railwayless, steam-hammerless, and comparatively tradeless even, though the country may be, it already enjoys, during the first fifty years of its struggle towards civilisation, an element of progress which our own boastful nation did not learn to welcome until after twice four centuries of enlightenment, I mean Compulsory Education.

Our visit to the Governor of Marovoay was a very satisfactory one, not so much because of the dinner he gave us, which was an entertainment of varieties, with interludes of tea and cake, as on account of the assistance he rendered in buying rice for our men. It was amusing to see how the official diligence was roused to unwonted exertion by a dexterous turn of a whip-hand wrist.

Rice was very scarce at Marovoay and was selling at five times the ordinary value. Even with the Governor's help in the bargain, our supply was paid for at the rate of two shillings for a measure which usually costs sixpence. The cause of the scarcity had been abroad on wings all over the province some months before—the myriad-mouthed locust, an enemy more terrible than ravaging lions. The scourge came on like driven smoke, and the hearts of the people sank within them. Some ran to their plantations and, half blinded by the rush of whirring wings, snatched away the green cobs of their maize crops; and a few saved little patches of rice by spreading their garments over the young plants. But an army could not have defended the broad fields where lay the people's bread. The whole atmosphere was locusts, a veritable

devouring element. And yet even when the cloud was densest, it was possible to walk about without much inconvenience. Few of the creatures erred in their flight. They wanted nothing with man. They entered not his houses. They tormented not his cattle. They left untouched the spreading shade of his mangoes and his tamarinds. They passed by forests of verdure and settled upon every tender shoot, and the loss to the land was incalculable. And man's only revenge was to strip off the legs and wings of a handful of the invaders and fry their fat bodies as a relish for his supper.

This was the first flight of locusts which had crossed Madagascar for ten years. It came up from the south-east, passed over Imérina and the rest of the mountainous country without doing much harm, and brought its accumulated hunger down to Ibóina and the north-west. The sea prevented its further progress, and, breeding-time being near, the insects settled upon the coast. Their young were afterwards seen hopping through the fields in innumerable swarms, while masses of those which had overreached the land were washed up on the beach like seaweed, and lay rotting on the sand at high-water-mark for miles.

Having obtained our supply of rice we prepared to leave Marovoay next morning. A smart whaleboat was ready on the river, beautifully clean and well-provided; also a stout African-born crew of five, in white uniforms trimmed with red, to pull her swiftly along the mangrove-lined stream some fifteen miles, until the dainty sails could be hoisted for a run. My intention was to take my companion down to Mojangà in a truly brilliant manner. But instead of thus being able to care for him, he had to look after me. On awaking at daybreak I found myself stricken with fever, and was fain to coil down in the stern-sheets of the boat and leave the honours of the craft to be done by the coxswain, beaming Moosa, of whom more will be heard later on. Towards evening I became a little better, and when at sunset we rounded the headland, where the broad river enters the still broader bay, and the sea-breeze came up in our faces, I revived sufficiently to be able to steer across the moonlit waters to our destination.

CHAPTER II.—Mojangà and Bembatòka: "What's in a name? By any other name t'would smell as sweet"—We inspect the Nuisances—Amiable Hova, Islamite squatters, Sakalava watermen, improvident Makoa, and chaffering Indians, "all pigging together on the same dunghill"—And yet not God-forsaken—An instance of His grace—A servant of seven Sovereigns—The boastful West, and the fighting South-east—Radàma's British friend—The birth of an Army—Discriminating neutrality—A facile Race.

MOJANGA, and what is called 'Bembatòka Bay', had become somewhat widely known even before the Franco-Malagasy war gave Europe a lesson in geography. At one time they were linked to the busy world by a magic red line on the British India Steam Navigation Company's chart of routes, and Her Majesty's sloops and corvettes on the East African station had always been in the habit of visiting the port, either to pick up mails, or lay in fresh provisions, when cruising in the Mozambique Channel for the suppression of the slave-trade.

But, although many had thus become acquainted with the town and its harbour, the name continued to be a source of perplexity to all who came on shore with their ears open. "What is it?" they used to ask "On the charts it is 'Majunga,' and folks outside say 'Ma-jùn-ga,' but here it has quite another sound, and the natives write 'Mojangà.'" The fact was that everybody had missed the mark a little: charts, outsiders, and native scribes all stood in need of correction. A colony of Kiswahili-speaking mongrel Arabs were the first occupants of the site. They had been driven from a former settlement, near the present town of Iboina, because they refused to shave their beards on the death of the Sakalava king; and coming across the bay, found, so say their descendants, the north shore lined with flowering shrubs, which, as the most remarkable thing about the place, led them to call their new village *Mji-angaia* = "Town of flowers." Shortly afterwards the Sakalava came across the bay too, and reestablished their power over the Islamite squatters; and subsequently the Hova appeared on the scene, subjugating both, and *Mji-angaia* was quickly corrupted to *Mojangà*, and *Mo-ja-ngà* it will therefore remain.

As for "Bembatoka," there is no such place now in existence, neither was there in 1881; but the elders of the land were then still able to remember that there was once a small Sakalava village called "Fòmbitòka," from its having one *fòmby*, or rofia tree, in it, near the mouth of the river, not far from which ships used to anchor in the days when *Mojangà* was not; and this "Fombitoka," the ancients said, had been adopted by the white men as the name of the bay and corrupted into "Bembatoka." The derivation might be accepted as the correct one, even if the divergence from the native word were twice as great, for white men are the most persistent corrupters of nomenclature upon the face of the earth, when they speak in tongues unknown to them.

Mojangà is the chief town of the province of Iboina—a wide and valuable stretch of territory, in which there is no lack of variety, either as regards the country or its inhabitants. Within its somewhat vaguely-defined limits there are wooded heights and fertile plains, winding tidal rivers, and deep, swelling bays. But the heights, and the thirsty and almost untrodden burning plains, are still rank with fever, and the wide rivers are slimy with much mud and horrible with many crocodiles. It is a land flowing with perspiration and stinging with mosquitoes, where one wastes the fiery day in wishing for night, and spends the infested night in longing for day.

Things were a little better than that, however, at *Mojangà*. A cooling glimpse of blue ocean, the restful shade of fruit-laden boughs, and breezes from the sounding waters, helped to make it not altogether unendurable as a place of residence. But in order to retain a good opinion of the town itself one had to be content to admire it at a distance. Like that western city described by the dry-witted American, it had a pleasing aspect when you were leaving it. The name of its nuisances was Legion. "Your 'Town of flowers' has more stinks in it than 'Many-crocodiles' even," said my colleague, as he recovered his breath after passing a heap of putrefying offal, a statement sufficiently damning to ruin the reputation of any town in the country. A short time before there would have been no doubt about its containing a just

verdict upon the condition of the place. The nuisances had grown to such an extent that one of us had ventured to prophesy a return of the cholera epidemic which, assisted by a subsequent visitation of small-pox, had more than decimated the population about ten years previously; and by dint of continuous hammering he at length warmed up the Governor's interest enough to get him to make a personal inspection. The result was a little sweeping here and there, and the removal of one of the slaughter-places from its offensive proximity to a crowded quarter. There were also a few attempts made to burn the scattered offal, and the Governor and his colleagues administered an astonishing quantity of good advice and newly-acquired sanitary wisdom. Whilst they were thus engaged, the afore-mentioned foreigner proceeded to complete the inspection by visiting the premises of the officials, and found them the dirtiest of all. But your genuine Hova never fails to manifest an ineffable unconsciousness of the things he has left undone, when there is an opportunity of counselling his neighbours respecting the things they ought to do. He receives advice with a ready good grace which cannot be surpassed, and bestows it with the same unfaltering facility. Still, he is not at all a bad fellow when you get to understand him, and he himself becomes aware of your knowledge. He is always hospitable, generally good-tempered, and seldom fails to be polite and respectful, unless he has been foolishly encouraged to the contrary.

Besides the Hova, or, more correctly speaking, the Imèrina garrison and its following of slaves, petty-traders, and hangers-on, Mojangà, like Marovoay, contained a mixed population. The descendants of the Islamite founders still flourished on the site, many of them seemingly without taking much trouble about the matter. The Sakalava also continued to regard the town as their head-quarters, their chief being resident there and holding an influential position in the government of the province; but a large number of them had gone up the river to live near the rice-fields and cattle-pastures. Many of those who remained were owners of outrigger canoes and earned an easy livelihood by ferrying, fishing, and cutting wood.

There were likewise some thousands of lately-freed Africans, mostly belonging to the Makoa tribe, black, tattooed, and shingly moist, and good-naturedly lazy beyond description. For several years after their emancipation these had contrived to support themselves by jobbing in the town, working a little upon an empty stomach, and sleeping hard upon a full one; the women making mats, drawing water, carrying stones for building, and acting as nurses, charwomen, and cooks to any person able to afford them food and clothing; the men collecting palm leaves for roofing, digging stones, salting, storing, and shipping hides, and working as sailors on board the dhows. But at the time of our expedition the rice famine had opened the eyes of even the recklessly improvident Makoa, and, like the Sakalava, they were moving off into the country.

In addition to the elements of population already described, there was a bazaar of muslin-robed Indian traders, some of them born on the spot, and the remainder emigrants from Kutch and Bombay, chaffering over money and merchandise, and running to prayers at the muezzin's call.

But the garrison contained without doubt the little leaven, little indeed, yet leaven. Nor were there wanting signs that the whole lump was beginning to feel its power, although the signs were few and not easy to describe; for the leaven worked after its own fashion, with so much empty swelling and collapse that a casual looker-on might be readily pardoned for asking what was the good of it. "The people here, Christians, Mohammedans, and heathens alike, all seem to me to be pigging together on the same dunghill," said a naval commander who visited the port in 1880. Another, who had seen the condition of things fourteen years before, remarked: "I notice a great improvement in this place." My reply to the first was: "They all seem alike, because you can only look at them from a distance."

It takes years of close acquaintance with people of a lower race to be able to see who among them are struggling to fear God and eschew evil. Even the most devoted teachers can seldom rightly estimate the strength of the spiritual forces at work within their disciples. That which is sufficient to raise a son or daughter of Christian Europe from the high level of our later civilisation and northern morality to be only a little lower than the angels, may be hardly enough to drag the foundling of heathendom from the companionship of the dunghill's aborigines. It is no testimony against the efficacy of the leaven that every wayfaring man cannot see exactly what it accomplishes. On the other hand, there is nothing to confirm the feeble knees of halting supporters of Christian missions in the fact that a returning visitor notices a change for the better after an absence of fourteen years. That which is so much upon the surface as to be visible to a hasty glance counts for little either way, but more especially little on the credit side. For Christianity can only establish a right to its imperial claims by producing more deep and lasting changes than any other religion can. There is not much to boast of in numbers, or devoutness, or clean, flowing robes and sandalled feet, or in burning zeal, or in shiny black cloth and the whited throat. If there be, the palm must go to Islam. It is only after we probe below all these and see how the teachings of Christianity not only win a way to the human heart, but leave the very Spirit of the Almighty Father breathing life therein, that we begin to be sure of being able eventually to point to those higher evidences of that Spirit's power which the world has been challenged to demand. There were few of these yet in Iboina.

The Governor of Mojangà is also Governor-general of the province, and at the time of our passing through his command its cares were hanging heavily on the shoulders of a weary old man. His name has already appeared in one or two volumes of travel; but the worth of a native official generally meets with very poor treatment in the note-books of foreign visitors. It was the misfortune of Ramàsy, 14 honours, to live in a climate uncongenial to the ripening of fame. For far fewer wounds and far less faithful service to his nation, many a more favoured European has gained an immortality. The story of this patriarch's life would be the history of his country. He had served no less than seven of its sovereigns, and had lived through more than seventy long years of war, revolution, and peaceful development, in patient devotion to his duty. Like most of the elders of his race, he was a Malagasy of the

Malagasy. He would hardly have admitted to his most secret soul that it was possible for any nation upon the face of the earth to govern this island better than the Hova, and he would have primed his flint-iocks and loaded his rusty artillery to defend Madagascar against the universe. Moreover, he bore within him that unquenchable belief in the power of a well-proclaimed law to carry itself into completest effect without any further trouble on the part of its promulgator, which is such a happy characteristic of all Malagasy rulers.

And yet there was that about this greybeard native which compelled respect and even reverence. Once a stalwart young heathen, rejoicing in all the vices of his race, he had learned to acknowledge the greater charm of law and sweet sobriety. A fighting savage in the wars of a conquering despot, he had become a faithful lover of peace. His belief in the witchcraft of his nation seems to have died within him as the midnight fears of children die, for lack of confirmation in growing years. He used to relate how his relatives insisted on his wearing charms to protect his life in battle, and how he came to regard such things as rubbish through seeing them fail to sustain their reputation upon others. And so with his faith in the national idols and the multitude of grosser superstitions which haunt the hearts of them that walk in darkness. And thus "the light which lighteth every man that cometh into the world" grew round him like a dawn. The gospel of love and a quickening spirit was but the fuller day. "I need no testimony," he was accustomed to say, "for I have felt, and I have seen." The last time I met him was at a ferry on the swollen Betsiboka. He was then on his way home to his native hills, to die in loved Imerina amongst his kindred, and his cheery "good-bye" was the "*auf wiedersehen*" of Christian faith and fell like benediction.

As a soldier under "Radama-the-father," Ramasy had fought against every warlike tribe in the island. His opinion of the Sakalava was one which few then held, but which has since been proved correct by the experiences of the late French invasion. Like Admiral Miot, he described them as braggarts and cattle-lifters. They would yell defiance like so many demons, but invariably retreated to the bush after discharging their firearms. "We found it different in the south-east," the old soldier said. "There was a tribe there who attacked us in the open with nothing but knives and shields. They fell in heaps before our fire, but heeded bullets no more than rain. They rushed straight up to the muzzles of our guns and defied us front to front; and the man who blenched before their defiance was cut down in an instant."

The veteran's stories of the old war-time afforded many an instructive glimpse of one of the secrets of Radama's marvellous success. The king's chief friend and counsellor was the British agent, Mr. Hastie, whose name will always deserve a place of honour in the story of Madagascar's childhood. Without appearing as a combatant, he accompanied Radama on his most important expeditions, advising him in all his difficulties, and teaching him how to act the part of a royal conqueror without behaving mercilessly towards the vanquished. It was he who first induced the king to employ a regular army. Beforetime the Hova battles had always been fought by straggling crowds of undisciplined men, whose chief concern was booty. They warred for

plunder and captives. Every man looked after his own commissariat, and nobody was responsible for his neighbour. The weak were left behind to starve, the sick and wounded fell out to die uncared for, and even when the enemy submitted without a struggle, there was ever abundant cause for grief in the mountain homes of Imerina. Fever and famine slew their thousands in every invasion of the malarial lowlands.

A few days' experience with an unmanageable horde of this description caused Mr. Hastie to advise Radama to pick out the fighting men and send the rest back to till the fields. There was no small difficulty in the proposal, but by means of determination and many fair promises of spoil to be divided, the king at length cleared his army of its living *impedimenta*, and marched victoriously round the greater part of the island. At the close of his warrior reign, every important tribe in Northern, South-eastern, and Central Madagascar had acknowledged the Hova power.

Mojangà was the scene of one of the decisive struggles. The Islamite settlers, and the few Indian traders who had then found their way to the place, were at a loss which side to declare for, and so betook themselves to the neutrality of the sea. They shipped their families and belongings on board their dhows, and anchored out in the bay. The story goes that they secretly supplied the Hova with arms and ammunition, and thus secured an interest which accounts for the most valuable sites in the town being occupied by their descendants. In fact, all the original founders of the "Town of flowers" became Malagasy subjects, and many of the Indians professed to follow suit.

When the writer first went to reside at Mojangà, these Indian fellow-subjects used to be daily about his doors with whining complaints against the Hova authorities. Alas! this barbarian Madagascar was not like Bombay and Calcutta; wherefore would he not be them a father and a mother and use his influence on their behalf, seeing there was no consul at hand to appeal to? Verily, was he not as the Viceroy of India and the whole British Empire! On several occasions he responded to their appeals and looked into the matters of which they complained, only, however, to discover that some of their most grievous sufferings arose from disappointment in their endeavours to obtain at once the rights of natives and all the privileges of foreigners. To him they abused the Malagasy, and to the Malagasy they abused the English. It also appeared that many of them were keeping slaves, and this information became a ready means of putting an end to their importunities.

An attempt was afterwards made by the present Governor of Iboina to sift these people into their respective nationalities, but their cosmopolitanism had then become perfectly bewildering, for there were not only Malagasy, English, and French East-Indians, but also East Indians of the United States of America! The general name for this facile race has already been mentioned as "Karàni," a Kiswahili word meaning clerk or supercargo. They are scattered about everywhere on the north-west coast from Cape St. Andrew to Cape Amber, and even as far round on the east as Vóhimàrina. Farther south, at Tamatave and other ports of the same coast, they are replaced by Malabars. Taking to shop-keeping as naturally as they took to their mothers' milk, the Karani are

the spreading suckers which feed the roots of the west coast trade, and often astonish even the wily Hova by the skill with which they practise the tricks thereof.

At cheating the revenue, with like opportunities, they would beat the very Evil-one himself, who never pays duty on any of his wares. Some time ago a notice was issued by the Hova officials in charge of the Custom-house at Mojangà, prohibiting all Indians from going upon the pier where goods are usually landed. On hearing of this the British Vice-consul arose in indignation, as British vice-consuls are wont to do under such circumstances, and protested against the flagrant partiality. If everybody was forbidden, the Indians would submit; if not, they were British subjects, and would go wherever other foreigners were permitted. Whilst the national temper was thus bubbling over, two Indians secretly approached the official clerk and begged him, for the love of heaven, to keep the Vice-consul quiet. He was spoiling an excellent business, they said. And then it turned out that the notice had been issued at their own suggestion, and well paid for too. in order to secure an opportunity of smuggling without being watched by their envious fellow-Indians.



CHAPTER III.—Radama's kittle cattle—The doom of "Imperial Cæsar" reversed—A Fetish made useful—Sakalavadom possessed of a Devil: one that came, like Satan, from among the Angels—Six of one and half-a-dozen of the other, but the Other preferred—How our Houseboy considered the ways of Solomon's exemplar and was wise—Salt and Slaves.

THE conquest of Mojangà was completed by a characteristic stroke of diplomacy. Radama discovered that the task of keeping the Sakalava together was far more wearying than that of fighting them. They were then, as apparently they always have been, a tribe without cohesion. Ruling them is, indeed, as the Hova proverb says, like carrying soft mud: "If you hold it lightly in your open palms, it will spill over; and if you close your hands firmly, it will slip through your fingers." Acknowledging that Imerina supremacy, they pay little reverence to anybody, and less to governmental order. Even their own hereditary lords receive but scant attention from them. A princess of their blood royal used to live, surrounded by some hundreds of her people, near the government station of Trabònjy, but there was not enough loyalty in all the tribe to build her a decent hut. They began one, it is true, but left it roofless, and she was indebted for its completion to the Hova Governor, who took pity on her age and helplessness. It was no uncommon thing for her to be seen wading in the mud of the rice-fields, planting the means of sustenance. Had she been dead and turned to clay beneath the field, her honours would have been more than regal.

Learning that the tribe's sole rallying-point was neither living chief, nor reigning sovereign, but the relics of an ancient king, Radama conceived the idea of securing these as a means of keeping his new subjects from dispersing beyond his reach. For a time his search was fruitless: the fetish had been hidden in the forest. At length, however,

a heavy bribe induced a Sakalava to tell of its whereabouts, and a seizure was made by a party of soldiers guided by the informer. For this important service the latter was placed beyond law for the rest of his life, and his family still ranks first in Iboina. The fetish itself was honoured with a house inside the Governor's stockade, and is guarded to the present day by Hova muskets. It is said to consist of the teeth and nails and back hair of a relation of the poor old princess just described. These relics are contained in a silver vessel, which is so swathed about with strings of beads and crocodiles' teeth, and horns of fat, and sacred honey, and other potent charms, as to be quite a strong man's load to carry. Such is the only bond of Iboina union, and to this the tribe gathers once a year with rum and drums and wild singing: and the priests of their uncouth religion agonise with inspiration from the fragments of mouldered mortality, and Sakalavadom holds high festival.

To anyone who sees no more than a crowd of half-naked savages reeling and yelling and brandishing arms, and hears nothing beyond the exciting chant of the crouching women, with its accompaniment of frantic tomtoms, the rattle of clapping hands, and the blast of a braying horn, the scene must appear like a glimpse of Pandemonium. And yet the root-idea of the Iboina faith is quite as sane as many which are taught in the name of Christianity, and which live enshrined amid the dim solemnity of holy places in Europe; telling us, if so be that we have ears to hear, that, disrobed of the grandeur of impressive ritual, our religion is often little better than a fetish, and ourselves most grievously ignorant of the truth which should make us free.

To the Sakalava the sovereign never dies. Departing the earthly life, he 'bends' or 'submits,' and passes to another existence, in which, by right of rank, he abides with the deity who rules the world. Thus he becomes a mediator for his people, and speaks to them through the priests who have charge of his mortal remains. "Ask of me, and I will ask of God," is the oracle's injunction to the multitude when the relics are brought forth at the yearly festival and carried in procession through the streets.

The same belief was held by the people of the interior before the introduction of Christianity at the beginning of the present century, and is beautifully expressed in a last pathetic speech to the assembled chieftains by the heroic old "Prince-in-the-heart-of-Imerina,"* whose prophetic charge to young Radama was the inspiration of all his enterprise, and whose forceful policy of unswerving aggression had already laid a wide foundation for the growing Hova kingdom. "The summons of the Creator has come," said the dying king; "my days are ended, and I am going home to the heavens. My flesh will be laid in the grave, but my spirit and my mind will abide with you and Radama. I shall not be elsewhere, for I shall whisper at his side." This is surely no ignoble faith, and those who hold it can scarcely be counted as denizens of outer darkness. But the worship of the "royal ancestors" is as impotent for good as the rubbishy relics around which it bends, and is always accompanied by rum and revellings and things of which to

* *Andrianampôinimèrina*, father of Radama I., who died in 1808. Digitized by Google

speakers were a shame. It is of the earth earthy, and of the Sakalava Sakalava.

Besides the big yearly festival there is a minor gathering once a week, on Fridays, which for the most part is attended only by women and children; and another on the Mondays immediately following the appearance of a new moon, when a little more energy than usual seems to animate the worshippers. These monthly celebrations are generally wound up with the slaughter of a bullock and signs of a general feast. A marked diminution in the numbers attending the yearly assembly was noticed as the result of an order from the Hova Governor, forbidding the introduction of rum within the stockade. The more devout of the Sakalava visit the '*Zomba*,' as their place of worship is called, on every occasion of private importance, to make offerings of fowls and money and ask for intercession, but their numbers are decreasing every year.

The word *Zomba*, by the way, is not of native origin, but comes from the Kiswahili, in which its meaning is simply 'house.' Why a word taken from the lips of Mohammedans should have been adopted by the royal-ancestor-worshipping Sakalava as the name of their barbarian temple is another addition to the many puzzles which remain unsolved in Madagascar's ethnography and language.

During our stay at Mojangà, one of us was luckless enough to make much unsolicited acquaintanceship with the Iboina ants, which have an inconsiderate habit of calling upon a stranger at night in the middle of his cosiest slumbers. There is not the least necessity here for the proverbial advice to the sluggard. "Go to the ant," is indeed no advice at all. It is like bidding one go to Jericho and fall among thieves by the way. "Go for her," would be more appropriate; but that again is easier said than done, she is so bewilderingly multitudinous. At first the unsuspecting foreigner had a dreamy consciousness of something being wrong between his head and the pillow. He felt as though his whiskers had been imperfectly hushed to sleep, and were not only wakefully standing on end, as civilised hairs are in the habit of doing, but were also taking a stealthy promenade into the nape of his neck. A brush of the hand, and a turn to the other side, and down he sank to his ease again, only, however, for a very brief space, for in less than a minute he was in motion all over, as populous as the British Isles, and looking like Gulliver overrun by Lilliput.

Between ants and fleas the natives, who sleep on the ground, have a very lively existence in some parts of the town. The torments work in shifts, taking six months each: ants in the dry season, and fleas in the wet. But the ants are the greater plague. It is possible to obtain some little relief from the fleas by sweeping and scrubbing, where floors are boarded, and by plastering with cow-dung those that are simple earth; but it is beyond human housekeeping to maintain everything so immaculately clean that the other busybodies will find nothing to meddle with. There was surely some mistake about their standing orders when Nature appointed them collectors of scraps and crumbs, for they want to scavenge everything, the sugar even, and the jam, and all the contents of the larder.

One of our servants nearly made up his mind to run away every winter on account of the constant warfare he was obliged to wage

against these marauding enemies of his peace. He used to heave great sighs and long for the fleas again. The only thing he found at all effective in keeping off the pests was finely-powdered charcoal. An African gave him the recipe, and poor houseboy thought he had discovered a short cut to the millennium. He collected all the eatables on the premises and crammed them into a cupboard, the feet of which he surrounded with four black pools of carbon, and then he chuckled to see his tormentors march off home again after a baffled attempt to find a passage. A few mornings subsequently, however, he came in sighing heavily once more. "They are making a bridge," he said. What could he mean but the ants? The formic acid was souring the man's temper perceptibly; and there, as he said, were the precious scavengers dragging loads of ordinary earth up the sides of the bricks which enclosed the charcoal, and piling it along in the direction of the cupboard. It was enough to drive anybody's houseboy to utterest despair. But the man took heart again, when he began to realise that he could easily knock down causeways faster than the ants could build them. And so things went on, until there came a day when, like a cunning diplomatist, he was able to employ his old foes to thrash new enemies with. It happened that the house was left for some time entirely in his care. Not feeling comfortable under sole responsibility, he begged assistance of the Governor, who kindly sent out two soldiers every night to keep guard. After the fashion of Hova watchmen generally, these fellows brought mats and pillows with them, and regularly began their nightly operations by composing themselves to sleep. This, however, was not the division of labour the houseminder approved of: he wished to do the sleeping himself. But his remonstrances and entreaties were all in vain, and to lodge a complaint would not have been seemly. And so the watchmen still slumbered and slept.

Then uprose that crafty domestic and took savoury morsels from the cooking-pots, gravy and rice and fat bits, such as creeping things love, and these he carried forth and sprinkled over the foolish guards and over their mats and pillows, and the sleepers wot not what had been done to them. But the ants soon knew all about it and swarmed up in countless thousands to the banquet. No snoring thing in the universe could have slumbered through such an onset. Sleep was as murdered as Scotland's Duncan, and the guards were overheard wishing for morning, one of them saying to the other: "Come, let us sit up and talk." And the buzz of their midnight converse sent that sharp-witted houseboy off to the land of dreams.

Mojangà has always been famed in Madagascar for its salt. At one time it was equally notorious for its slaves. The two things seem to have little to do with each other, but they used to be closely connected, nevertheless. Money was honestly made by salt and illegally spent on smuggled Africans. This continued until the emancipation of 1877, which liberated all imported slaves and compelled the salt-makers to look out for other investments.

According to Malagasy estimates, the salt industry is a very profitable one. A man and his wife can earn from two to four pounds a month by it; working of course during the dry season only. Tools and plant cost

carcely anything. A bundle or two of traveller's-tree leaves from the forest, a spade, two old paraffin-oil tins, and a few native baskets, are all the necessities not provided by nature. A wide, sandy flat at the head of one of the many mangrove-lined creeks serves as a manufactory, and the faithful tides wash in the raw material. An earthen embankment is thrown up to form a dry enclosure, within which the sand is scooped out in rows of shallow holes, each about the size of an ordinary wash-hand basin. These hollows are then lined with leaves to form evaporating pans, and a supply of sea water completes the preparations. Fine weather and plenty of sunshine carry on the work.

A considerable quantity of the salt thus made is used in the town and neighbourhood for curing hides, but the bulk of it goes by the south-east road to the more populous districts on the hills. It is poled up the river by strong-limbed fellows in monster canoes as far as the last rapids, near Mévatanána, and thence proceeds on staggering legs and weighed-down shoulders through various towns, until it disappears by handfuls, at the rate of about threepence a pound, in the crowded wayside markets of the interior.

The progress of the imported Africans used to resemble, in some respects, that of the native salt. They always underwent a process of preparation, and this was frequently followed by a journey up to Imerina. A negro slave was not lawful merchandise unless he had been brought to the island previous to the date of the British treaty with Queen Rasohérina in 1865. The smuggled wretches were therefore kept near the coast, until they knew enough of the language and customs of the country to be passed off as slaves of old standing. But, for the most part, they were very well treated, and the healthy ones soon grew sleek in easy servitude, few Malagasy being cruel in their mastership. There is little of the pride of race to the fore when brown-skin deals with black. It takes a white man to make a typical slave-driver. The fact of numbers of the emancipated negroes having chosen to remain with their former owners, rather than set up in the world on their own account, shows that the yoke in Madagascar is not a heavy one. Indeed it states more to the credit of the master against that of the slave than our free-born sympathies are willing to admit, perhaps. But it is well that our hatred of slavery should be healthy. Root it in a nourishing soil, and it will thrive in any climate, but a handful of loose sentiment cannot support it long in the tropics. A man so unmanly that he cares not to struggle for his freedom, and a brother so moistly uninviting that one's first thought after taking him by the hand is of soap and water, would be very startling realities to drop into the midst of some of our enthusiastic anti-slavery circles, where the apparent coldness on this question of many who travel in uncivilised lands is so fervently bemoaned and prayed over. A companion picture to that of the suppliant negro in manacles might be made of certain of his race in Imerina, who went about weeping because liberty had come; and probably the unprejudiced truth would then lie somewhere midway between the two.

The emancipation of the Africans in Madagascar was a bold assertion of power, made with much assumed confidence, but not without considerable inward fear, for it might have produced an uprising that would have swept the throne into wreckage. Once clear of this danger, the

Government's share of the cost was paid, and all that followed was gain to it. The liberated negroes passed from the service of the subject into that of the State: they became so many more hands and feet to do its bidding. To the owners the reckoning was different, but they wisely made a virtue of necessity, and endeavoured to realise that the virtue was its own reward. There was no indemnity paid. The wind of freedom was not tempered to the shorn master, as it was at the time of our West Indian emancipation. Capital was sacrificed as well as all possible profit.

That this great risk was run, and so heavy a loss endured, in order to satisfy the demands of British philanthropy, takes nothing from the honour which is justly due to the late Queen, the Prime Minister, and the people of Madagascar; for every nation has to learn its right-doing from some necessity or other, and the Malagasy need not have done more than abide by the treaty in which they had pledged themselves to prevent any further importation of slaves.

But it is astonishing how little notice was taken of all this even by England herself. Except in a few comparatively unknown semi-religious journals, and the still less widely-circulated chronicles of missionary societies, the affair was scarcely referred to at all. One might imagine that such acts of justice and of national submission to the rights of humanity were things of daily occurrence in the world. The facts of history seem to testify that they are not.

Much more might be said on this subject, but this must suffice. I will only add that it is greatly to be regretted that the European powers interested in Madagascar did not, several years ago, agree to let this country have the benefits arising from the "Agreement for the Regulation of the Traffic in Spirituous Liquors," and so do all in their power to save the Malagasy from what is a greater curse to them than even slavery, viz., the pouring into the country every year of thousands of barrels of foreign rum to degrade and destroy people who are still weak and ignorant.

W. CLAYTON PICKERSGILL.



A RAIN-PRODUCING TREE.*

Extracted from the PROCEEDINGS OF THE ZOOLOGICAL SOCIETY, Jan. 22, 1832.

A LETTER was read addressed to Charles Telfair, Esq., Corresponding Member of the Zoological Society, as President of the Mauritius Natural History Society, by M. Goudot. It is dated at Tamatave (Madagascar), April 23, 1832, and contains an account of a remarkable phenomenon connected with a tree of the genus *Morus*, which is not uncommon in the vicinity of the place. From the branches of this tree, which are covered with a thick coriaceous foliage, there is seen to fall, more especially towards midday, and under the influence of a burning and almost vertical sun, a copious and refreshing supply of limpid dew, or rather rain. On ascending the tree, an explanation of this singular property is at once obtained. Around the vigorous shoots loaded with leaves, and particularly at their ramifications, are found large clusters of *larvæ*, covered by a whitish froth, in constant agitation, and pressing eagerly upon each other in their attempts to apply themselves to the surface of the bark, from which they extract the sap in such quantity as to maintain their bodies in a state of saturated humidity. This sap is afterwards poured out, either through particular organs scattered over the surface of the body, or by means of the common excretory ducts, and forms drops of small size, which are gradually collected into larger drops, and appear to M. Goudot to escape from the bodies of the *larvæ* with a rapidity proportioned to the action of the solar rays. The activity of the *larvæ* is, in fact, increased in a corresponding degree with the increase in the atmospheric temperature. Towards evening, and when the influence of the solar rays is sensibly diminished, the production of the fluid, thus singularly secreted, is partially suspended, and drops fall slowly; as night advances, a few rare and tardy drops are heard at distant intervals, until at last they altogether cease, to be again renewed with the first rays of the morning sun. When fifty or a hundred such clusters of *larvæ* are placed, as often happens, on the same tree, it may well be imagined that the secretion may become sufficiently copious to assume the appearance of actual rain.

Some idea of the rapidity with which it falls may be obtained from the mode in which M. Goudot collected a bottleful for transmission to the Natural History Society of Mauritius. He states that in the beginning of February he placed under one of the trees in question a vessel capable of holding a *litre* (nearly equal to an English quart). The mass of *larvæ* selected as purveyors consisted of from 60 to 70 individuals, about half grown; and the sun being powerful, the drops were very large and fell in quick succession. He estimates that, setting aside the loss by evaporation, and by the animals which drank from the

* During my late furlough in England, while working one day at the British Museum Library, I came across the accompanying curious account, in a volume of the *Proceedings of the Zoological Society* for 1833 (Jan. 22nd). As it seemed to me well worth reproducing in the ANNUAL, I copied it for that purpose and give it herewith. For another account of this tree, see ANNUAL VIII., p. 114.—J.S. (ED.)

vessel, he could have filled the bottle in an hour and a half. The limpid character of the water encouraging the belief that it was free from any pernicious qualities, M. Goudot tasted it, and found no unpleasant flavour; he also gave it to some fowls, without producing any inconvenience. When exposed to the air, however, it speedily loses its transparency and assumes a lemon-coloured tinge.

The insect by whose *larva* the fluid is secreted is described by M. Goudot as a species of the genus *Cercopis* of Latreille, and nearly related to the *Cercopis spumaria* (*Cicada*) of Europe; which latter recalls in miniature what takes place in the large Madagascar larva, secreting, like it, large quantities of white froth, and suspending itself, with its foamy mantle, from the blades of grass on which it feeds. It appears to be entirely new, and as M. Goudot had neglected to name it, Mr. Bennett stated that he embraced with pleasure the opportunity of dedicating it to its discoverer, under the name of *Aphrophora Goudotis*, the former name having been generically applied by Mr. German to that subdivision of Latreille's genus *Cercopis*, to which the insect in question belongs. M. Goudot states that it attains a length of about one inch and a half. He adds that, even after having attained its perfect state, it remains upon the tree, fixed to the small branches, but in a state of isolation; and that, having observed several individuals in this condition, he perceived that they continued to emit, from time to time, minute drops of clear and limpid water. Its colour is an irregular mixture of dull grey, yellow, and black. The legs are entirely black, and the claws which terminate the *tarsi* are very strong. It emits a disagreeable scent.



SOME NOTES ON NATIVE MEDICINE AND MEDICAL CUSTOMS,

AS PRACTISED BY THE SIHANAKA.

IT is with some diffidence I take up a subject which could be treated much better by abler hands. It has, however, occurred to me that a few notes, by way of introduction to a fuller treatment of the purely native side of medical practice in this island, might be interesting, and possibly instructive, to the readers of the ANNUAL.

The following notes are from particulars gathered by the evangelists and native teachers here in Antsihànaka from the people, as well as from personal investigation. Much of the information given will doubtless do duty as a description of the heathen medical customs of Imèrina and other provinces. What is purely Sihànaka, and not in vogue in other parts of Madagascar, can only be made out at a later period by a comparative table, indicating those pertaining to each of the different tribes from the Hova outwards in every direction.

Meanwhile, I can only say that my intention is to present all that I have laid my hand upon relating to the medicines and medical customs known and practised in Antsihanaka, but not necessarily by the Sihanaka alone.

Let me also state that the basis of my enquiries was a series of over forty printed questions by an American graduate, sent to me two or three years ago, and which I had translated into Malagasy and distributed among the evangelists. Much that has been sent in answer to these questions is negative, and much, on the other hand, is pretty well known to most Europeans who have come a good deal in contact with the natives; still, for the benefit of those not so placed, I have thought it better to give, in some instances, what may be put down as "old news."

To begin with the Malagasy medicine-man. As in most heathen countries, the native medical practitioner is recognised as a mighty power in the community; and although his success in beguiling the common people is far greater rather than his success in curing them when ill, he still gains an immense influence over them. The *mpanao ôdy*, as they are called, are very nearly related to, and in some cases mixed up with, the workers of the *sikidy* and *vintana* (divination and fate), the foretellers of lucky and unlucky days, etc., all of whom, as relating to Imerina at least, have been fully and ably written about by the Rev. L. Dahle in previous numbers of the ANNUAL. The native doctors, in this connection, are divisible into three classes: firstly, those who are simply makers of medicines and charms; secondly, those who, besides doing this, work the *sikidy* or divination; and thirdly, those who, in addition to the above, are *mpanandro* or astrologers. These latter are few in number and inhabit the most inaccessible and heathenish villages, notably Anorôro. (*Vide* "A Chapter on Antsihanaka;" ANNUAL, 1890.)

When a medicine-man is consulted, it is not, as with Europeans, for the purpose of getting what will simply cure the disease, but, in addition to this, he is required to give assurance that the patient *will not die*, which, unfortunately for his reputation, he is invariably ready to promise, even going the length of declaring that should the patient, through any unforeseen cause, not recover, he will bury him inside his own cranium!

It is necessary here, however, to give the native theory of disease, before describing the practice of the native medical faculty. In one word, it is witchcraft. This, according to the Sihanaka, is the sole author of all the ills that flesh is heir to. If there was no witchcraft, no one would be ill or die. Their ideas seem to be somewhat mixed, however, for they believe that those who die of old age are taken away by the good God (*Zanahary tsàra*); whereas all others are called from off the scene of life by the evil God (*Zanahary ràtsy*). With the exception of death from old age, they have not the slightest idea of death coming naturally, or as the penalty of sin ordained by a righteous God. Illness and death, according to their theory, would be almost entirely preventible, if one could make sure of eluding the powers of witchcraft. Unfortunately for the native, nearly everyone and everything he comes in contact with he thinks liable to be under its spell; and if it were not for the *mpanao ôdy* (charm-maker) and his confrères, the *mpisi-*

kidy (diviner) and *mpanazàry* (enchanter), the mind of the average Sihanaka would probably be thoroughly unhinged by fear. Therefore when disease, among other causes of apprehension and fear, takes hold of one of them, he immediately goes, if able, to some renowned medicine-man, when the latter, knowing his inability to cure disease by rational and simple means, and perhaps unwilling to trouble himself with such, to him, abstruse matters, takes the seeds of the *Fàno* or some other tree, and relies on the chance throws of these, as of so many dice, to confidently inform the patient all about the disease and its treatment. He also informs him as to the exact position of the tree, part of whose roots, etc., are to be made into medicine, and last, but not least, says that the patient will not on any account die. Thus any one who is possessed by the fear of death through witchcraft runs to his only source of comfort; and the trusted comforter of the mind and assuager of the pains of the body relies on a few seeds to give all the information required, that he may accomplish, not the main object of the patient's concern, but his own selfish ends, the acquisition of money by unfair means.

There is what might be called a department of preventive treatment, including, in cases where the medicine-men are merely consulted out of fear of some impending calamity, firstly, prescriptions for medicine to be taken and charms to be worn by the patient; and secondly, directions as to medicines or charms to be administered to those from whom harm is to be feared. Under this head would be placed the *ody fanèfitra*, or charms for preventing evil. These are known to have been more or less universally adopted by the natives on seven different occasions within the last eleven years, when certain epidemics were predicted.

Let us now go on to the consideration of the practice of what, for want of medical knowledge on the part of the practitioner, the *sikidy* or divination so kindly supplies. This includes the procuring of the different herbs and roots by the *mpanao ody*, who is scrupulously careful in the matter of roots, for he must only take those running east and north. Those running west and south are tabooed, as they are likely to bring disaster to the patient if made into medicine and used by him.

In making medicines to be drunk, as well as other kinds, the native dispenser selects a new earthen pot, which is called "the pot not contaminated by anything dead" (*vilà tsy màty*). In this vessel are put the various ingredients, and after soaking for some time in the clean water contained therein, the cold infusion is drawn off and administered to the patient. Any left over is put away in black bottles, not in clear glass ones, lest the vulgar eye should see the medicine, and thereby it should lose its strength. Sometimes the number of decoctions to be used hot, and one immediately after the other, is so great, that the patient has to go to the forest, in order to obtain the firewood needed in such extensive medications. In a case that I know of, the individual had to keep no fewer than nine pots boiling all at a time.

Besides the above, there are many different ways of administering medicines. Sometimes a bolus of fresh leaves is given, followed by a mixture called the *tsindry ody*, for the purpose, as the name implies, of

"keeping down" the former, whether by its weight and quantity, or by its inherent medicinal properties, is doubtful. Most of the medicines taken internally are in the form of infusions. The Sihanaka medicines are very strong on purgative medicine, and think it almost always necessary to give a good dose of it before general treatment, no matter what the state of the patient is. I have good authority for saying that not a few ignorant people fall victims to this practice every year, through deficiency of knowledge of the poisonous qualities and proper dose of some of these strong medicines on the part of those who prescribe. I may state here also, in this connection, that for the same reasons, the calomel and perchloride of mercury sold in the markets are answerable for the death of a goodly number even in Antsihanaka. There are some few drugs, however, well known by the *mpanao ody* to be very poisonous, and which they are generally unwilling to touch. A limited number, however, of the doctors who are known to be *māsina ôdy* and *mahery fānafôdy*, or, in other words, are skilful in making medicines, shew their dexterity and skill in preparing these for use, and are implicitly trusted.

The Sihanaka have some curious ideas as to the mode of operation of drugs, and of external manipulation in the treatment of disease. They practise massage, and, though used at times, it would seem, with a view to directly acting on the affected part, it is in most cases employed as a means of diagnosis, and besides that, as a means of getting the disease confined to one part of the body, where, they say, it can easily be found and dispersed by the decoctions and infusions given afterwards. They say in such a case, "it is a matter of being bewitched through food, which sticks in both sides (of the patient);" or, "it is a disease following known causes, wandering all over the body, but when brought to a standstill, it is as good as cured."

Heat in one form or other is almost always used in the treatment of disease. Poultices of various ingredients, such as hot sand, chaff, rice, etc., and fomentations and vapour baths, are common remedies for various complaints. The general way of applying a poultice is simply by placing with the hand a rag with the hot material inside it on the part affected and keeping it there as long as it can be borne, when it is taken off, then applied again, until it gets cold. They do not use it constantly, but leave it off until the pain or other symptoms are again troublesome, when the application is again renewed as above described. Very few of the Sihanaka are courageous enough to have even a small abscess cut by us, and prefer to endure the pain and swelling and uncertainty of prolonged semi-barbarous treatment to having it opened in a rational way.

In the administration of medicines (whether applied externally or internally) that would seem to us to have some effect on the diseases intended to be cured, the Sihanaka medicine-men have no idea of how they work. This results of course from their utter ignorance of elementary anatomy and physiology, which, when we come to think of it, strikes one as somewhat strange. When we remember the constant opportunities they have of acquainting themselves with the internal organs of the cattle which are killed in such numbers in nearly every large village and town, the wonder is that none have been led out of

curiosity to dabble in the region of comparative anatomy, and ask themselves the why and wherefore of the heart, lungs, liver, and all the other details of the interior of a human body. But, as has often been remarked even of the educated Malagasy, originality is conspicuous by its absence; so here, among the most uneducated, it is hardly fair perhaps to expect original research as to anatomical construction and physiological cause and effect.

Native female doctors are few, but renowned. They mainly practise, with the help of the inevitable *sikidy* (divination), on their own sex; and in the working of the oracle, it is said that they have some customs peculiar to themselves, which I need not detail here. A very few of the most renowned are known to have been successful in the treatment of diseases such as—from the native descriptions—would seem to have been pleurisy and peritonitis. One such is known to have cured eight men of general diseases given up by the medicine-men.

In some cases the women doctors are known to have what might be termed "patent medicines," or medicines the manufacture and administration of which is only known to themselves and those of succeeding generations, who receive such knowledge as an heirloom of the family. Notable among these is a specific for *cancrum oris*, the sole property and concern of one old body living in the south-west of Antsihanaka, who has been successful in the treatment of several cases of this almost incurable complaint, which in European hands generally needs the application of strong acids and requires the best nursing. I know of one case especially, where the child of one of Mr. Pearse's old Sihanaka scholars was saved by the treatment of the lady specialist of Ambóhitrómby.

That which pertains to the surgery of the Sihanaka includes but little worth recording. In cases of simple fracture, the limb is put up in a somewhat loose kind of splint (*hàratra*), made of young bamboo or other like material easily procured. In this it generally unites, though doubtless in most cases with a good deal of deformity. In addition, the patient is given a number of concoctions for his internal benefit, and notably one made of calves' bones, ground up fine, for the purpose of helping the formation of bone, and making up for lost substance.

Wounds with free hemorrhage are treated by putting cold water on the patient's head, and the wound is smeared round about with the juices of leaves. Water is poured only once on the wound. Then the patient is removed to another house (*miàla sikidy*), lest his own house should be bewitched; and generally he dies on the way, if the hemorrhage is at all excessive.

In the northern parts of Antsihanaka some sort of compound noted for its biting qualities is applied; other cases are approached in a more business-like manner, by binding the arm or leg above the seat of hemorrhage with a bit of cloth or *fandrotràvana* grass, forming by these means a temporary tourniquet.

As to actual cutting, the Sihanaka have not got beyond the initial stages of the national rite of circumcision, and that of cutting the navel-string of newly-born babes. Cases of spear-thrust are sometimes seen, and when the fat, or the internal organs happen to protrude, there

are some courageous enough to take them away, thereby endangering the life of the patient. Stitching of wounds in some instances has been done by the Sihanaka, but it is questionable if that is a purely native practice. Dislocations are frequently replaced by forcible extension, assisted by massage and plenty of hot water. Beyond the above, the natives are afraid to venture, and, as one friend says, even if they knew how, they would not be bold enough to exercise their knowledge.

Though the dead and the houses of the dead are held in great fear and are tabooed, and the former are generally put underground within a week, without any *post-mortem* examination, still I have notes of two exceptions, where autopsies were made in cases of ascites. The one was done to let out the ascitic fluid, lest the burying party should catch the disease; and the other from fear of burying a live animal with the corpse!

The midwifery practice of the Sihanaka is, for the most part, carried on by a set of elderly matrons, whose treatment is more noted for vigour than for success. These old dames are implicitly relied on, and I have been not a little amused, on being called to help in some difficult cases, to find that my presence was requested by the member of the profession in attendance, and not by the woman or her friends. I may as well state here that, with the exception of those cases in which they are at their wit's-end, so to speak, the Sihanaka have as yet, in ordinary cases, not begun to call in the help of those whom we have taught. In the Hova towns it is somewhat different, as those we taught at Ambátondrazaka, for instance, have been very useful among the women from Imerina, who know the advantages of a little practical knowledge on such subjects.

It is rather uncertain to what extent the *mpanao ody* can help in midwifery cases. In the practical operations of the case, they are excluded, but are generally available for consultation, and are called in to work the *sikidy* in more than usually difficult cases. As this part of my subject is hardly suitable for a general paper in a non-medical magazine, I must only refer briefly to some of the customs connected with it.

The leading principles on which a maternity case is conducted include violent rubbing down and exercise, and, in the acute stages, the patient is ordered to a particular corner of the house, where she is supposed to be free from the powers of witchcraft, etc. Noise, bustle, and general confusion prevail, and even the male members of the family are allowed to squat about and help in the general hubbub.

In certain instances a most offensive and nauseous concoction is given to the woman. Following that, first, anything hung up or bound with cord in the house must be taken down or loosed; secondly, all the household goods are turned out of doors, and the covers are taken off all cooking utensils; thirdly, they call for the *mpisikidy* to work the oracle, which leads to a change of house and of midwife. In some cases as many as five or six changes have been made one after the other. Fourthly, the lid of a cooking-pot is placed on the woman's head, or water is poured on it. By this time the attendants seem to be done up as well as the patient, and they exclaim: "She is certainly bewitched by someone." This is the time, says one of the native evangelists, when they call in the Vazaha (foreigners) to help them; and I, on the other

hand, would venture to remark, this is the time when the woman is *in extremis*, and little can be done, except to accuse them mentally, and pity them in their terrible ignorance and stupidity.

In cases which have gone on normally, but where there is after difficulty, the nauseating medicine is again given, and the patient is aroused and made to cough by rubbing her throat. She is also made to swallow some leaves done up in a piece of cloth from the corner of her *lamba*, cut off for the purpose. This done, she is taken up bodily, and violently shaken up and down, as one would do with a bottle of medicine (*hòntsankontsànanana*).

A custom called the "heated stone" (*tòno-vàto*) is also practised in some cases of difficulty in the second stage, for the purpose of killing the child. This is also done in cases of criminal abortion, which, it appears, is not unknown in Antsihanaka, though practised secretly, as in more civilized countries.

In cases where the child is still-born, or does not cry or evince immediate signs of vitality, a fowl is often hastily snatched up and swung over the face of the infant, under the belief that its constant cackling and efforts for release will arouse the child. It is, however, open to question whether the reason really is not that the operation may drive away any spirits in league with the Evil-one, which may be hovering about, spite of all their precaution, and exercising their power over the life of the newly-born infant.

The lying-in period generally lasts from a week to a fortnight. Even in that short space of time the woman is allowed some, though limited, exercise. The lying-in bed is a specially constructed and somewhat marvellous affair called a *kòmpy*. It is made of thin strips of bamboo, put together so as to allow of considerable space below, for the insertion of two or three large water-pots, which are filled with dried cow-dung and kept lighted night and day. The patient thus undergoes a continuous dry vapour-bath for a number of days, which has rather the effect of retarding convalescence than hastening it. To make things all the warmer for the woman and her offspring, a cloth curtain is fixed above and all round the bed. These temporary structures are always erected within a foot of the fireplace. This of course adds to the great heat, and there is no small danger of setting the whole concern, with its living contents, on fire.

It is as well to mention that in all these cases the *sikidy* is consulted beforehand, and the greatest care is taken lest neighbours and strangers should enter. For this purpose a little wooden cross is hung up in the doorway. Rice is brought from villages round about, and water for household purposes cannot be taken from the spring from which it is usually got, but from others some distance off. These customs are the outcome of fear, and in the case of the birth of a first child they are strictly observed, when the household is still purely heathen.

Infanticide is practised in secret, but not to such an extent as in former times. As in other provinces, the month of Alakaosy is notable in this respect, being a most unlucky one.

In connection with specific diseases (known to the Malagasy by the name of *fàrasisa*, etc.), I may note that the Sihanaka have the most erroneous ideas, and though a few recognise the close connection of

these, in their initial stages, with impurity of conduct, yet the greater number fail to see that the after-stages, when the disease gets hold of the bones and internal organs, are at all related to the primary symptoms. The mode of treatment varies, but mainly consists of separation from all the patient's friends and relations, for which purpose he is made to sojourn in a temporary house out in the rice-fields, or elsewhere. There he undergoes treatment, the main factor of which is heat. He is made to lie on a mat with hot chaff or sand under it, to drink hot decoctions, and if there are any abscesses, poultices of sand or other simple ingredients are applied. It is unfortunately thought by nearly all educated as well as uneducated Sihanaka that such diseases are necessarily a part of everybody's lot in this life, and, in the present condition of living, perhaps they are not so very far from the truth.

As many are aware, Antsihanaka is noted for its *tazo*, or malarial fever. This is undoubtedly a formidable foe to those not used to it and, as far as I have been able to judge, shews itself in three or four forms, more or less dependent on the constitutional tendency of the patient. Firstly, there is the ordinary form, with distinct hot, cold, and sweating stages, which, with good nursing and plenty of quinine, is generally cured in less than a week. Secondly, there is the nervous form, when the patient is "down" every now and then with a slight attack of the first variety, and is chronically in a nervous, desponding, and fretful condition. Nerve tonics, quinine, and, notably, electricity, are the leading forms of treatment. In this form muscular tremors are frequent and distressing. Thirdly, there is a bilious variety, when abdominal symptoms predominate. And fourthly, there is a general variety, which follows or accompanies nearly all severe illnesses or operations, especially if the patient has not previously lived in the higher parts of the island, where there is greater immunity from the disease than in the low ground surrounding Lake Alaotra, and the extensive marshes immediately to the south of it.

The native Sihanaka and the Hova residents are equally attacked by the malarial emanations, and the latter, if not soon taken in hand with quinine, soon succumb; especially is this true of those coming to Antsihanaka for the first time in the summer months, December—March, who are not *vilan' ny tazo* (having already had the fever), as they express it, while still in Imerina. I have seen or heard of hardly any Sihanaka, however, dying from *tazo* pure and simple. Numbers of them have spleens that almost fill the abdominal cavity, and these often cause great discomfort, and sometimes are the direct cause of death by mechanical obstruction to the circulation, etc. It is difficult, however, to know how to distinguish between these enlarged spleens, which are purely the result of the inhalation of malarial germs, and those which are the result of inherited or acquired syphilis. I have often seen infants not a week or a fortnight old, with much enlarged spleens, or *atòdi-tazo*, as they are called. The native treatment of malarial fever consists in sending the patient out early in the cold morning dews and mist to take exercise. Then he is made to bathe, by having a cold douche all over him. After that a form of vapour bath is improvised with some steaming decoction, the materials being various herbs. Lastly, he is not allowed to lie down, or if, from exhaustion, he must needs do so, he must be content with a board, or the floor.

Many, especially from Imerina, will not take quinine, though they well know its powers, as they say they want the fever to get a thorough hold of them, and so have done with it for ever. In many instances this becomes only too true, but in another sense, for it gets such an unexpected hold of them that it kills them.

There are many things to be tabooed (*fady*) by the Sihanaka who places himself in the hands of his medical guide and counsellor; but as the subject of *fady* has been treated briefly in a recent number of the ANNUAL, it is unnecessary for me to do more than mention it here.

With regard to native medical fees, the following is a translation of what the native teacher at Amparafaravola has sent in on this part of the subject.

"When a patient approaches a native medicine-man for the purpose of getting advice and being prescribed for, he must first of all arrange about the fee to be paid before treatment (*sàram-pànafôdy*), as well as that to be paid while still under treatment (*tàtsak' ôdy*). From what I myself have seen, the bargain is generally made according to the condition of the patient. If it is a trifling ailment, such as a cut finger, or a small abscess, or colic, the fees before and during treatment are about one shilling and fourpence respectively. Along with these, there is an agreement as to plates, fowls, rice, two ducks, two spoons, and two bottles of native rum. When the patient gets better, he is expected to shew his thankfulness by an offering of about four shillings and eightpence. But if the disease is at all serious, the payments are, before treatment, four shillings (a dollar), and during treatment, a little over two dollars, or eight shillings. To these are added, a red cock, two large earthenware plates, and two bottles of native spirits." To this is further added the *fialiana*, or expression of thankfulness, which may include a cow, or some vermouth wine or cognac brandy, as well as cloth, geese, etc., etc. (For further particulars as to the rejoicings of the Sihanaka after sickness, see ANNUAL (*Reprint*), 1875-78, p. 328.)

If, on being cured, the patient is unwilling to pay up according to agreement, he is solemnly informed that the medicine he has taken will turn upon him and make him ill again, because it is "vexed and angry" with him. If this happens when the native doctor is himself ill, it is worse all round, for, says the latter, through his messenger: "Give me the money or the oxen you have been bidden to pay, as the medicine is disgusted with me and makes me ill, for it says to me: 'You have'nt yet got our fee from Mr.———'."

In what has been written above, it will have been clearly seen that, with one or two exceptions, the native medical treatment of the Sihanaka is, for the most part, "a delusion and a snare." There is no reasonable and recognised basis of action, but, on the other hand, there is much that is absurd and productive of ill rather than of good to the bodily and mentally afflicted who seek advice and remedies from their blind medical guides.

It only remains for me to say that a brighter day has dawned for the Sihanaka in the matter of medical treatment and nursing. The labours of our predecessor, the Rev. J. Pearce (now stationed in the Betsileo province), in that respect are by no means forgotten by his Sihanaka friends; and the medical work of the several evangelists has been of

good service in helping the natives to better and more rational views as to the value of foreign medicines.

Lastly, I may note that what we have seen, both at Ambatondrazaka and here at Imérimandrôso, of the readiness of the Sihanaka to be nursed by European missionaries, augurs well for the wide spread fame as well as local success of the Cottage Hospital now opened. I say "wide spread," because I believe that such a Hospital, conducted on proper Medical Mission lines, should be able to affect the whole province, and help eventually to the utter abandonment on the part of this as yet heathen tribe of their ignorant and superstitious practices, and their full reception of a rational and sensible mode of treatment, based on the knowledge of Him Who is Physician both of soul and body.

JAMES G. MACKAY.

APPENDICES TO "TWELVE HUNDRED MILES IN A PALANQUIN" (*ANNUAL NO. XVI.*, p. 434).

NO. I.—NOTES ON THE N. BETSIMISARAKA AND TANKARANA DIALECTS.

THE following tables show some of the forms of the Pronouns in the North Betsimisarakà (Marôantsètra) and the Tankàrana dialects.

NORTH BETSIMISARAKA.

Personal Pronouns.

Nominative.

<i>Sing.</i>	<i>Plur.</i>
1. Zaho,	1. { Antsika (inclusive), Ane (exclusive),
2. Anao,	2. Andreo,
3. Izy.	3. Izy.

Possessive.

<i>Sing.</i>	<i>Plur.</i>
1. Nihinahy,	1. { Nihintsika, Nihine,
2. Nihinao,	2. Nihindreo,
3. Nihinazy.	3. Nihinazy.

Accusative.

<i>Sing.</i>	<i>Plur.</i>
1. Ahy,	1. { Antsika, Ane,
2. Anao,	2. Andreo,
3. Azy.	3. Azy.

Words with Pronominal Suffixes.

A.—Possessive, with nouns.

<i>Sing.</i>			<i>Plur.</i>		
(1)	1.	Vari | anahy,	1.	{ Vari | ntsika,	
	2.	Vari | nao,		{ Vari | ne,	
	3.	Vari | anazy.*	2.	Vari | andreo,	
			3.	Vari | anazy.	
<i>Sing.</i>			<i>Plur.</i>		
(2)	1.	Satroko | anahy,	1.	{ Satroko | ant'sika,	
	2.	Satroko | anao,		{ Satroko | anc,	
	3.	Satroko | anazy.	2.	Satroko | andreo,	
			3.	Satroko | anazy.	
<i>Sing.</i>			<i>Plur.</i>		
(3)	1.	Lakan | anahy,	1.	{ Lakan | ntsika,	
	2.	Lakan | anao,		{ Lakan | anc,	
	3.	Lakan | anazy.	2.	Lakan | andreo,	
			3.	Lakan | anazy.	

B.—Ablative, with verb.

<i>Sing.</i>			<i>Plur.</i>		
1.	Mati | ky,		1.	{ Mati | ntsika,	
2.	Mati | nao,			{ Mati | ne,	
3.	Mati | ny.		2.	Mati | ndreo,	
			3.	Mati | ny.	

NOUNS WITH PRONOMINAL SUFFIXES IN THE TANKARANA DIALECT.

<i>Sing.</i>			<i>Plur.</i>		
(1)	1.	Laka | nanakahy,	1.	{ Laka | nantsika,	
	2.	Laka | nanao,		{ Laka | nanay,	
	3.	Laka | ninany.	2.	Laka | nareo,	
			3.	Laka | ninany.	
<i>Sing.</i>			<i>Plur.</i>		
(2)	1.	Varotro | nanakahy,	1.	{ Varotro | nantsika,	
	2.	Varotro | nanao,		{ Varotro | nanay,	
	3.	Varotro | ninany.	2.	Varotro | nanareo,	
			3.	Varotro | ninany.	

R. BARON. (ED.)

NO. II.—WORDS COLLECTED IN THE NORTHERN PROVINCES OF MADAGASCAR.

Abio	(N. Betsim.)	These (= <i>Iréo</i> , Hova).
Aléfa	(Betsim.)	= <i>Avéla</i> , Hova.
Amia	(N. Betsim.)	= <i>Ométo</i> , Hova.
Andra	(Tankar.)	I do not know (= <i>Tsy fantatro</i> or <i>asa</i> , Hova). Also=day.
An(g)o	(Betsim.)	River (= <i>Ony</i> , Hova).
Ankandra	(Tankar.)	A small river fish.

* So far as I could gather, however, *variny* (Hova form) is used in such cases as the following: "*Mô varianazy ity?*" "*Ia, variny*" ("Is this his rice?" "Yes, it is his rice"). I tried to get to the bottom of this apparent anomaly, but did not succeed.

Ankómbô	(Tankar.)	A kind of lemur.
Arôiky	(N. Betsim.)	One (<i>ei</i> pronounced like <i>ei</i> in eight).
Ba	(")	O dear ! alas !
Pa }	(")	
Bakanténiny	(N. Betsim.)	The bird called <i>Tsintsina</i> (Hova). This is probably the <i>Bakantiny</i> of Dict.
Bangôa	(Betsim.)	A road, a path (see Dict.).
Belâhy	(N. Betsim.)	Grandfather.
Bevavy	(")	Grandmother.
Bilo (= <i>Bândro</i>)	(Sih.)	A species of lemur.
Bôka	(Betsim.?)	Brackish.
Bôzy	(N. Sak.)	A tree with a fruit about the size of a cocoa-nut, the seeds of which are eaten.
Dâra	(N. Sak.)	A species of palm-tree.
Dimaka	(Tankar.)	The <i>Béfêlalanana</i> fan-palm.
Dôkitry	(N. Betsim.)	A duck.
Dongôlo	(Betsim.)	An onion.
Fan(g)êva	(Tankar.)	Hair.
Fanôko	(N. Betsim.)	As in Dict., but the first <i>o</i> is like <i>o</i> in <i>tonc</i> .
Hazinina	(Betsim.)	Name of a tree (<i>Symphonia</i> ? sp.).
Hêdy	(Betsim.)	= <i>Hiany</i> , Hova.
Hêlîtry	(")	A basket (= <i>Hârôna</i> , Hova).
Hôndroko	(")	A large spoon (not <i>Ôndroka</i> , as in Dict.).
Hôvotro	(Betsim.)	The core from the still unfolded leaves of the Traveller's-tree, which is boiled and used as food (in addition to, or perhaps instead of, the meaning given in Dict. It is not <i>Hôvotra</i>).
I	(N. Betsim.)	That one (= <i>Ilay</i> , Hova).
Kêtraka	(")	Level.
Kirêndry	(Tankar.)	A meteor.
Kômanôkôry	(")	A wild-bôar (but see Dict.).
Lahâly	(N. Betsim.)	Yesterday (= <i>Lahâlîny</i> ; see Dict.).
Lakintana	(Tankar.)	A star.
Lâmbam-bity	(")	The sole of the foot.
Lamôty	(" and Sak.)	A shrub with edible fruit (<i>Flacourtia Ramontchi</i> , L' Herit.).
Ledrônga	(N. Betsim.)	The bird called also <i>Railôry</i> .
Litsêro	(Betsim.)	A winnowing sieve.
Maintsy	(Tankar.)	Cold (adj.).
Mâlaka	(")	To fetch.
Manêla	(")	To be in blossom, to flower.
Manakôry arô	(Tankar.)	How do you do? <i>Mamilana</i> , as in Dict., is a variation of the same.
Manâry	(Betsim.)	To inter.
Mandrênto	(Tankar.)	The crow (= <i>Gosika</i> , Hova).
Man(g)atô	(Betsim.)	To do (= <i>Manao</i> , Hova).
Mân(g)izômbô	(Tankar.)	Name of a tree (<i>Clerodendron</i> sp.).
Mântsiviry	(Betsim.)	A tree snake.
Masôva	(Tankar.)	The sun.
Matsioka	(Betsim.)	Bitter, saline.
Mênarângy	(")	A wild man of the woods.
Miâsa hârana	(")	= <i>Mamâdi-pâty</i> (Hova).
Mijêry	(Tankar.)	To consider (= <i>Mikhêvitra</i> , Hova).
Misân(g)itsy	(Tankar.)	To sing.
Misângo-bâry	(Betsim.)	= <i>Mijinja vâry</i> (Hova).
Mitsiriky	(Tankar.)	To rise (as the sun).
Mokôty	(")	The <i>Sâttramé</i> fan-palm.
Nininy	(N. Betsim.)	His mother.
Nivakiky	(Betsim.)	= <i>Novakiko</i> (Hova).
Pitiky	(Tankar.)	<i>Akôndra</i> (bananas) dried in the sun, which taste like dates.
Rabôsy	(Tankar.)	A cat. (<i>Rapussy</i> ?).
Raingimboay	(")	= The bird <i>Manârana</i> .
Ranaotra	(N. Betsim.)	A sister-in-law (= <i>Zaobâvy</i> , Hova).
Rânto	(Betsim.)	The sea-shore.
Rantôtro	(")	A large kind of chameleon.
Rêbaka	(Tankar.)	Dead.
Rôho	(Betsim.)	A fenced-in compound.
Sâtrana	(Tankar.)	The <i>Sâttramira</i> fan-palm.

Simbo	(N. Betsim.)	A cloth, a garment (= <i>Lámba</i> , Hova).
Sobéha	(Betsim.)	A rainbow.
Somóny	(N. Sak.)	Sixpence.
Sy	(Tankar.)	The <i>Véro</i> grass.
Tandrèvo	(Betsim.)	A small sea-shell.
Taombaka	(Betsim.)	A hole.
Taròndro	(Tankar.)	A kind of chameleon.
Tékatéka	(")	A species of sea-cockle.
Tèndron-tanèty	(")	A mountain.
Tóla	(N. Sak.)	A kind of curds obtained from milk.
Tombitsy	(Tankar.)	The foot.
Tonèndry	(Tankar.)	The guinea-fowl.
Tromba	(Betsim.)	The spirits of the dead. This is also a Sàkalàva word for <i>Ramanènjana</i> , Hova.
Trotrómby	(Tankar.)	A cloud
Tsérakàndo	(Betsim.)	A small-bodied sea-fish about a foot long, with lower jaw protruded and narrowed to point from about 2 in. from mouth. It jumps about on the surface of the water.
Tsikafàra	(Betsim.)	A vow (= <i>Vòady</i> , Hova).
Tsikirikirioka	(Tankar.)	A species of Bee-eater (= <i>Kirivirioka</i> , etc.).
Tsipóy	(Tankar.)	A small river fish.
Tsirébika	(Betsim.)	A pumpkin.
Tsirévo	(Tankar.)	A frog.
Valiha	(N. Sak.)	A bamboo.
Vàly	(Tankar.)	Husband or wife (= <i>Vàdy</i> , Hova).
Vario	(N. Sak.)	An island.
Vàtomahita	(Betsim.)	Clear quartz-crystals.
Vavàna	(")	A kind of shark.
Viky	(")	Intestinal worms.
Vila	(")	A space fenced off on the sea-coast or in the lagoons for catching fish.
Vòambàra	(")	Butterflies and moths.
Vòanàto	(N. Betsim.)	The black insect so common in the eastern forest, which rolls itself into a ball about 1½ in. in diameter. It is a species of <i>Sphærotherium</i> or <i>Zephronia</i> .
Vòatrònaka	(Betsim.)	A shrub with edible fruit (<i>Placourtia Ramontchi</i> , L' Herit.).
Vòny	(N. Betsim.)	A bead (= <i>Vàkana</i> , Hova).
Vòro	(N. Betsim.)	Hair.
Zàma	(Betsim.)	A son-in-law (but see Dict.).
Zànaka àmin'	(")	A child of parents belonging to different tribes (= <i>Zafindraony</i> , Hova).
àmby	(")	
Zèna	(")	A daughter-in-law (but see Dict.).
Zèny	(N. Betsim.)	That (= <i>Izàny</i> , Hova).

R. BARON. (ED.)

NO. III.—THE PARABLE OF "THE PRODIGAL SON" IN FOUR MALAGASY DIALECTS.

ON the four following pages will be found a passage (Luke xv. 11-32) given in four of the chief dialects of the island, the greatest possible care having been exercised in order to ensure accuracy. The comparison of these dialects will, it is hoped, be found of interest to those acquainted with the language.

A few verses are also given in the Tankarana dialect, which will be found very similar to that of the Northern Betsimisaraka.

The *n(r)*, which frequently occurs, is pronounced as *ng* in *kingly*, not as in *singly*.—R. BARON. (ED.)

HOVA.

11 Ary hoy Jesosy : Nisy lehilahy anankiray nanana zanaka mirahalahy.

12 Ary hoy ilay zandriny tamin-drainy : Raiko, omeo ahy ny anjara-fananana tokony ho ahy. Dia nozarainy tamin' izy mirahalahy ny fananany.

13 Ary nony afika kelikely, dia nanganonin' ilay zandriny ny fananany rehetra, ka lasa nankany an-tany lavitra izy, dia nandany ny fananany tany ny fiveloman-dratsy tany.

14 Ary rehefa laniny avokoa ny fananany rehetra, dia nisy mosary mafy tamin' izany tany izany, ka nahantra izy.

15 Dia nandeha izy ka niankina tany ny tompon-tany anankiray tamin' izany tany izany, ary dia narahiny tany an-tsahany hian-dry kisoa.

16 Ary satriny hameno ny kibony tany ny voan-kazo fihinan' ny kisoa, fa tsy nisy nanome azy.

17 Ary raha nody ny sainy, dia hoy izy : Indrisy! maro ny olona karamain' ny raiko manan-kanina be dia be, fa izaho kosa maty mosary eto !

18 Hiainga aho, dia hody any amy ny raiko ka hanao aminy hoe : Raiko ô, efa nanota tany ny lanitra sy teo anatrehanao aho

19 ka tsy miendrika hatao hoe zanakao intsony; fa ataovy tahaka ny anankiray amy ny olona karamainao aho.

20 Dia niainga izy ka nankany amin-drainy. Fa raha mbola lavitra izy, dia tazandriny, ary onena azy izy ka nihazakazaka, dia namihina ny vozony sady nanoroka azy.

21 Ary ilay zanany nanao taminy hoe : Raiko ô, efa nanota tany ny lanitra sy teo anatrehanao aho ka tsy miendrika hatao hoe zanakao intsony.

22 Fa rainy kosa nanao tany ny ankizilahiny hoe : Alao haingana ny akanjo tsara indrindra ka ampiankanjo azy; ary asio peratra ny tanany sy kapa ny tongony ;

23 ary ento aty ny zanak' omby nafahy, ka vonoy ; ary aoka isika hihinana sy hifaly ;

24 fa ity zanako ity efa maty, fa velona indray, ary efa very, fa hita indray. Dia nifaly izy.

25 Fa tany an-tsaha ny zanany lahimatoa ; ary nony nody izy ka mby teo akaiky ny trano, dia nandre zava-maneno sy dihy.

26 Ary niantso ankizilahy anankiray izy ka nanontany azy izay anton' izany zavatra izany.

27 Ary hoy ilay ankizilahy taminy : Tonga ny rahalahinao, ka namono ny zanak' omby nafahy ny rainao, satria efa tafaverina soa aman-tsara ato aminy izy.

28 Dia tezitra izy ka tsy nety niditra ; ary nivoaka rainy ka nampandroso azy.

BETSILEO.

11 Ara hoe Jesose : Nisy lahilahy iraiika nanan(g)a anaka mirahalahe.

12 Ara hoe ilihy zaene tamin-draene : Aba, omeo ahy ny zara hareana tokone ho anahy. Dia zinarane tamin' aze mirahalahe ny hareane.

13 Ara sy nan(g)anon(g)anona, eko savy vinorin' ilihaka zaene ahy ny hareane, eko roso an(g)a an(g)indra-tany i, ko nandane ny hareane tany ny hagegana tan(g)e.

14 Ara sy lanine ahy ny hareane, savy nisy re mosare fatratsa tamin' izay tany izay, eko nahadinain(g)a i.

15 Dia roso i ko niapitsa tany ny topon-tano iraiika tan(g)a amin' izay tane izay, eko dia ninan(g)ene ho an(g)a atamboho han(g)-ara kiso.

16 Ara leone hameno ny tron(g)e amy ny voakazo fihinan' ny kiso, firo tsa nisy nan(g)-ome aze.

17 Ara sy nody ny vetsevsene, eko dia hoe i : Koaihy a! rehan(g)a ny olona karamen-dracko mana-kanem-be soasoa, eko aho mate mosare atoy.

18 Ho roso aho, eko hody an(g)a amin-dro raeko, eko hitaron(g)a amin' aze hoe : Aba o ! Efa nanao raha tsa mete tan(g)a an-dan(g)itsa e noho teo akatrehanao aho

19 ko tsa mba tandrifin' ny hotaron(g)ena hoe anajanakao koa ; fa ataovo mitovy amy ny olon-draika karamenao aho.

20 Dia roso i ko nohoan(g)a amin-dro raene. Fa sy vona lavitsa i, ko tsinjon-draene, ara nitsotso fo aze i ko dinomae, eko nana-kambin(g)a ny vozen(g)e ko dia nan(g)oroka aze.

21 Ara ilihy zanan(g)e nitaron(g)a tamin' aze hoe : Aba ô, Efa nanao raha tsa mete tany ny lan(g)itsa e noho teo akatrehanao aho ko tsa tandrifin' ny hokaihina hoe anajanakao koa.

22 Firo raene nitaron(g)a tany ny ondevolahine ko nanao hoe : Alao malaky ny akanjo soa soasoa eko apiakanjo i, ara isio peratsa ny tan(g)ane eko hanao ny tombon-(g)e ;

23 Ara fairy atoy ny anak' aombe vondrakaka, eko vonô ; ara ano tsika hihinana eko hifale ;

24 fa itoy anajanako itoy efa tan(g)a akady, voho nivokatsa, ara efa vere, voho hita koa. Dia nanao kilalao be i.

25 Fa tan(g)a atamboho ilihy zoken-janan(g)e ; eko nody i eko sy nariny ny tran(g)o ko nandre ny kilalao be reke dihy.

26 Ara nangaika ondevolahy iraiika i ko nan(g)otane aze ny fotots' izao raha izao.

27 Dia namale ilihy ondevolahine ko nanao hoe : Ahy ako ny rahalahinao, eko namono anak' aombe vondrakaka ibaba, fa nipody tsa nan(g)inon(g)inona atoy amin' aze i.

28 Dia nadihy i ko tsa nete hiditsa ; eko dia nienga raene ko napiditsa an' aze.

SIHANAKA.

11 Hoy Jesosy: Misy leilaha iraika nanan(g)a anaka mirahalaha.

12 Hoy ny zandriny tamin' dadainy: Dadaiko, anday an-ahy ny andrasa fanan(g)ana mety ho an-ahy. Ka norasainy tamin' anjy mirahalaha ny fanan(g)any.

13 Nony iefa afaka vetiketika, ka nandrobon' ny zandriny ny fanan(g)any daholo, ka nandeha nankany amy ny tany alavitra izy, ka nandany ny fanan(g)any tany ny fitibotiboan(g)a tsy manjary tan(g)y.

14 Nony iefa tsy isiny daholo avy ny fanan(g)any rahetra, ka nisy silaona mafy tamin' izany tany izany, ka nangoaina izy.

15 Ka nandeha izy ka niampitra tany ny tompoan-tany tokana tamin' izany tany izany, ka nirahany hankany an-tsahany hiam-bina kisoa.

16 Tieny hamoky ny kibony tany ny voan-trazo fohanin' ny kisoa, ka tsy nisy naname an-anjy.

17 Nony tafody ny fan(g)ahiny, ka hoy izy: Esy! betsaka ny olona tambazan-dadaiko manan-tranina betsaka dia betsaka, ka izaho kosa matin-tsilaona eto.

18 Handeha izaho ka hody an(g)y amin' dadaiko ka hitaria amin' anjy hoe: Dadaiko ô! iefa nanao ny tsy mety tamin-dan(g)itra sy taminao izaho

19 ka tsy tokony hatao hoe anakao intsony; ka ataovy milahatra amy ny olona tambazanao izaho.

20 Ka nandeha izy ka nankany amin' dadainy. Ka nony mpola alavitra izy, ka tazan-dadainy, ka firaina azy izy ka nikazakazaka, ka nitolon(g)a ny tendany, ka nanoroka an-anjy.

21 Ny zanan(g)y nitaria tamin' anjy hoe: Dadaiko ô, iefa nanao ny tsy mety tamin-dan(g)itra sy taminao izaho ka tsy tokony hatao hoe anakao intsony.

22 Ka dadainy kosa nitaria tany ny andovolahany hoe: alao madikitra ny akanjo tsara fatratra, ka asarony an-anjy; ka asevo fery ny tan(g)any sy kiraro ny ongony;

23 ka alao mankaty ny zanak' aomby vondraka, ka vonô; ka ambia isika hihinana sy hiravoravo;

24 ka ity anako ity iefa maty, ka velona indre, ka iefa very, ka hita indre. Ka niravoravo izy.

25 Ka takan(g)y ny zanan(g)i-laha talan(g)olo; ka nony nody izy ka tonga takekin' ny tran(g)o, ka naharen(g)y raha man(g)eno sy dihy.

26 Nanantso andovolaha tokana izy ka nanon(g)tany an-anjy ny nanaovana izany raha izany.

27 Ka hoy ny andovolahy tamin' anjy: Tonga ny rahalahanao, ka namono ny zanak' aomby vondraka idadainao, satria iefa tafaherina soa aman-tsara ato amin' izy izy.

28 Ka nan(g)avy asira izy ka tsy nety niditra; ka nivoaka dadainy ka nampiditra an-anjy.

N. BETSIMISARAKA (MAROANTSETRA).

11 Jesosy nivolan(g)a tamin' azy: Nisy olo areiky nanan(g)a zanaka aroy lahy.

12 Nivolan(g)a tamin' ianginy ny zandry olo: Baba a, amia zaho ny raso fanan(g)ana fanôko zaho. Avy takeo niraseny tamin' jareo aroy lahy ny fanan(g)ana anazy.

13 Avy takeo tsy nahadin(g)y ela loatra, nafompon' ny zandry olo ny fanan(g)ana an-azy jiaby, losony an-tany lavitry izy, avy takeo nohaniny tany ny fahalefadefahana takany ny fanan(g)ana anazy jiaby.

14 Avy takeo ka lembany ny fanan(g)ana anazy jiaby, avy takeo nisy silôno fonitry tany ny tany nongoany tany, nijaly izy.

15 Avy takeo nandeha ka nitavandra tamin-jafitany areiky tamin' izeny tany izeny, ka naseny nandeha lavidavitry ny tanana hiam-bin-dambofotsy izy.

16 Avy takeo tiany fô ny hankafeno ny vaotraka anazy amy ny voan-kakazo fohanin' nylambofotsy, ka tsy namian-jareo indrekry izy.

17 Avy takeo nody ny eritry anazy, ka nivolan(g)a izy: Pa! fonitry ny olo karamen' iangy manan(g)a haniny fonitry, fa zaho matin' tsilôno foan(g)a aketo.

18 Hienza zaho, hody an(g)y amin' iangy, ka hivolan(g)a amin' azy: Baba a, efa diso tany ny lan(g)itry kala timasonao zaho,

19 ka tsy fanôko ho zanaka anao eky zaho; ataova karaha olo araiky karamenao zaho.

20 Avy takeo nandeha izy nongo tankany amin' ianginy, ka paola tilavitry izy, nahatsinjo azy ianginy, ka navorain(g)y azy ka nihazakazaka kala nanambotro ny ambozon(g)o anazy ka nioroko azy.

21 Ny zanan(g)y nivolan(g)a tamin' ianginy: Baba a, efa diso tany ny lan(g)itry kala timasonao zaho, ka tsy fanôko antsôviny ho zanaka anao eky.

22 Fa ianginy indrekry nivolan(g)a tany ny amporialahy anazy: Alà malady ny akanjo tsara tatô, ka ataova amin' azy; avy akeo ataova ampety ny zana-tondro kala saron-kongotro ny hongotro anazy;

23 Avy akeo indôsa aty ny zanak' aomby vondraka ka vonoa, ka avelâ atsika hinana kala hiravoravo;

24 fa izanaka anahy ity efa naty, avy takeo velona indrekry; efa very, avy takeo hita indrekry. Kala niravoravo zareo.

25 Fa tan(g)y an-kiaka ny zanan(g)y zoky olo; avy takeo nody izy ka narindrin' ny tran(g)o, naharen(g)y osika kala dihy maresaka izy.

26 Avy takeo nan(g)antso ny amporialahy anazy areiky izy, ka nan(g)ontany azy ny fototr' izeny raha maresaka izeny.

27 Avy takeo hoy izy tamin' azy: ômby akô ny zandry anao, ka mamono ny zanak' aomby vondraka ianginao, fa nitraotra tamin' azy tsara be izy.

28 Avy takeo vasira ny zoky olo ka tsy nety niditry; avy takeo nivoaka ianginy ka nanôno azy hiditry.

HOVA.

29 Fa izy namaly ka nanao tamin-drainy hoe: Indro, izay ela izay aho no efa nanompo anao ka tsy mbola nandika ny didinao na dia indray mandeha akory aza; nefa izaho tsy mbola nomenao na dia zanak' osy aza mba hifaliako amy ny sakaizako;

30 fa raha vao tonga kosa io zanakao io, izay efa nandany ny fanananao tamy ny vehivavy janga, dia namono ho azy ny zanak' omby nafahy hianao

31 Ary hoy rainy taminy: Anaka, hianao eto amiko mandrakariva, ary anao avokoa izay rehetra ananako.

32 Fa mety ny mifaly sy miravoravo; fa ity rahalahinao ity efa maty, fa velona indray, ary efa very, fa hita indray.

BETSILEO.

29 Firo namale i ko nanao tamin-draene hoe: Ijahanao ara moa, fa aho ro niambono anao izay ela izay eko tsa vona mba nanda izay raha napanaovena ahy lake indrika; eko lake anakanak' ose tsa vona mba nomenao ahy hifaleako amin-dro namako;

30 fa sy avy io anajanakao io, tape-nan(g)-ahaka ny hareanao tamy ny apela amboa-lambo, ko savy namonoanao anak' aombe vondraka i.

31 Ara hoe raene: Anaka, han(g)ao atoy amin' ahy totolo andro, ko anao aby ny rahalahy.

32 Fa tsa man(g)inona lake mikorano(g)a tsika; fa ity rahalahenaio ity efa tan(g)a akady, voho nivokatsa, are efa vere, ko voho hita koa.

TANKARANA.

11 Jesosy nivolan(g)a tamin' azy: Nisy olo areiky nanan(g)a zanak'a aroy lahiv. Nivolan(g)a tamin' iadany ny zandrin' olo: Ada a! Amia zaho ny rasan' ny hariana lan(g)iny nakahy.

12 Ary teo nirasainy tamin-dro aroy lahy

ny hariana anazy.*

13 Raha náfaka tselatsela navòrin' ny zandrin' olo ny hariana anazy jiaby, ka roso an-tany lavitry izy. Avy teo izy nandany ny hariana anazy tamy ny fitondrana ainy raty tan(g)ly.

A few general remarks may be here made on the Betsimisaraka and Tankarana dialects. As, however, I did not give special attention to this subject, some of the statements may require to be modified when we are in possession of fuller knowledge.

(1) The *o* has two sounds: (1) It is like *oo* as in *tool*, (2) and like *o* in *tone* (in the latter case I have marked it *ô*).

(2) The nasal sound of *n* [which I have marked *n(g)*], which is apparently found in all the dialects except the Hova, is exactly similar to *ng* in *kingly* and not like *ng* in *singly*.

(3) *Moko* for *moka*, *satroko* for *satroka*, etc., seem strange to anyone accustomed to the Hova forms. The rule seems to be that the last vowel, at any rate after *k* and *tr*, is the same as the preceding one: e.g. *Ondroko*, *Moko*, *Satroko*, *Varotro*, *Soliky*, *Lan(g)itry*, *Lavitry*, *Hevitry*, etc. Large numbers of such words therefore in the dictionary (such as *Ondroka*, a large spoon) require correction, since they have been changed by those who have collected the words to harmonize with the Hova form.

(4) In a compound word consisting of two members, if the first letter of the second word be *h*, it is changed to *tr*, where in Hova it would be altered to *k*; e.g. *tenin' Trova* (= *tenin-Kova*), *olon-trafa* (= *olon-kafa*), *olon-trendry* (= *olon-kendry*).

(5) Notice the following forms: *matin' akolokoloko* (= *matin' kolokoloka*), *nangalarin' akary* (= *nangalarin' kary*), *ambanin' agamela* (= *ambanin' gamela*), *varin' azaza* (= *varin' jaza*).

(6) As will be seen from the portion given from the New Testament, the pure Betsimisaraka dialect has not the conjunctions *ary*, *dia*, or *sy*. Where an *and* is necessary, they appear to use *kala*.—R. BAKON. (ED.)

* It will be seen that this and one or two other words are not in accordance with Tankarana pronominal suffixes as given on a preceding page. I suspect that the individual whom I got to translate this passage was influenced by his acquaintance with Betsimisaraka; for this reason I stopped him after having done three verses. The rest of the passage I think may be relied on as pure Tankarana, as I referred it to several of the more intelligent natives.

SIHANAKA.

29 Izy namaly ka nitaria tamin' dadainy hoe : Ity, izay ela izay izaho no iefa nanompo anao ka tsy mpola nanda ny atao-nao na indre malaka aza ; kaefa izaho tsy mpola namenao na dia zanak' aositry aza mba hiravoravoako amy ny havako ;

30 ka nony voa tonga io anakao io, izay iefa nandany ny fanan(g)anao tany ny veivavy malanga, ka namono ho an-anjy ny zanak' aomby vondraka hianao.

31 Ka hoy dadainy tamin' anjy : Anaka, hianao aketo amin' ahy isan-andro, ka anao daholo avy izay rahetra anan(g)ako.

32 Ka mety ny miravoravo ; ka ity rahalahanao ity iefa maty, ka velona indre, ka iefa very, ka hita indre.

N. BETSIMISARAKA (MAROANTSETRA).

29 Fa izy namaly ka nivolan(g)a tamin' ianginy : Indreo, zaho ela be ze nanompo anao ka tsy indreky diso tany ny didinao sambaha indreiky aby aza, ka zaho tsy indreky namianao sambaha zanaka beingy areiky aby hiravoravoako amy ny sakaiza anahy ;

30 Izy ka avy izanaka anao io efa nandemba ny fanan(g)anao tany ny viavy mpisengy, namono ny zanak' aomby vondraka namianao azy anao.

31 Avy takeo hoy ianginy tamin' azy : zana-ka an-ahy anao, aty amin' ahy maza(n)g)a, ka nihinao tsintry ny fanan(g)anao anahy jiaby.

32 Fa tsara ny miravoravo ; fa izandrinao ity efa naty, avy takeo velona indreiky, efa very, avy takeo hita indreiky.

NO. IV.—ITINERARY OF JOURNEY.

Towns or villages (many others exist besides those mentioned).	Distance in Time.	Approximate No. of Houses.	Height in feet by aneroid of places not on the coast.	Remarks.
(The remarks made under this heading have reference to the country between the village opposite which the notes are given and that preceding it.)				
ANTANANARIVO TO FENOARIVO.				
Antanânarivo Imérimandrôso (N.E. side of L. Alaotra)	7 days	200	3000	
Ankakitombaka	H.M. 4.0	14	2900	Over bare hills. Ankaitombaka is on western edge of great forest, the inhabitants from here eastwards being Betsimisaraka.
Ampélamánambato	4.30	12	2280	Thick forest ; road very bad. Ampelamambato in a forest glade with large stream, which runs into the R. Maningory.
Tsarasambo	2.45	16	2000	Thick forest ; bad road. Tsarasambo in a forest glade with the same large stream.
Sálangina	4.0	12	1100	Thick forest ; road still bad. Salangina in a forest glade with the same large stream.
Isáhatavy	3.30	35	600	Soon after leaving Salangina, there is a very stiff difficult climb of 900 feet, the top of the hill being practically the east limit of the large forest. Then down again 1000 feet into valley below. Sahatavy on bank of river of same name.
Isahavé	3.40	12	780	Leaving Sahatavy, there is the longest climb on the road, the hill being 1450 feet above valley on each side.
Mahambo	1.30	40	500	} Mountainous country largely covered with forest.
Mánanôro	2.15	40	500	
Anosibé	4.0	25	500	
Ambátomipáka	4.5	20	330	
Betámpona	2.40	12	700	
Fénoarivo	1.30	Large village.		A large and important place on E. Coast, with villages of Vohimiasina and Sáhavôla close by.
FENOARIVO TO DIEGO SUAREZ.				
Tampólo	2.30	15		Road mostly on sand of sea-shore. Swamp and short lagoon to left.

Towns or villages (many others exist besides those men- tioned),	Distance in Time.	Approximate No. of Houses.	Remarks.
Máningóry	H. M. 2.30	12	Road on sand of sea-shore and among bushes. Maningory on north bank of river of same name, which runs from L. Alaotra. It is crossed by canoe. From Fitadrano northwards the hills gradually approach shore.
Fitadrano	2.40	25	Road still mostly on the beach, the R. Mânantsatrana crossed by canoe.
Saháka	2.35	6	Road along beach and over wooded mountain spurs, the scenery being very fine.
Sóamiánina	2.0	70	Soamianina is Capital of Vôngo province, and is close to sea. Road mostly over well-wooded hills.
Andrángazáha	2.15	6	Cross R. Marimbo in canoe. Road along shore.
Antsiraka	4.15	30	Road mostly runs by the side of long belts of wood. Antsiraka is at the extreme point of the triangular headland opposite Ste. Marie.
Fándrarázana	3.30	4	Road on sea-shore, mostly under <i>Filao</i> trees.
Manómpana	2.0	35	Cross by canoe the R. Fandrarazana, through mangrove swamp, and cross in canoe the R. Manompana. From here northwards as far as Antseranambe or thereabouts (30 or 40 miles), the large forest comes down to the very coast.
Anové	3.0	5	R. Anové crossed in canoe. Road on beach, and through woods.
Mandrisy	3.0	8	R. Mânambato crossed in canoe. Along shore, and then through thick forest stretching from the interior to the coast.
Antánambé	2.45	50	Road on shore with inlets filled with mangrove swamps. Antanambe is a town of some importance.
Sáhasóa ..	4.0	6	Road along sandy shore and over mountain spurs with fine views (Islands of Hatáfana, etc.). The River Vâhibé crossed by canoe, the Mavôy and Mânandrea crossed by wading.
Antseranambé	3.30	5	Road mostly along shore, and partly over very large and difficult, sometimes almost impassable, blocks of rock.
Ambôhijânahâry	4.30	120	Over forest-covered mountain, then through grassy comparatively level country a few miles from the sea.
(= Isoâvinarivo)			
Aniribé	2.0	60	Cross the R. Mânanàra by canoe, and through grassy woodlands.
Mânambolôsy	4.0	15	Road mostly a little distance from the coast, in part through a swampy flat, and R. Fâhambâhy crossed by canoe.
Tánjona	3.30	50	Road follows shore. R. Fôntsimàro crossed by canoe. It forms a lagoon.
Anândrovôla	3.30	8	Forest thick and often reaching sea. Along shore and over mountain spurs, crossing the R. Fananchana by canoe. Village of same name (12 houses) on N. bank of river.
Rântabé	3.0	30	Shore all the way.
Nandrasana	3.30	6	Shore all the way.
Antóraka	4.0	15	Through shrubbery, cross R. Volôina by canoe, then shore, cross in canoe the R. Mânambia, forest, and finally shore again.
Isóanierána	2.0	200	Cross R. Antoraka by canoe, shore, then inland through wood to Soanierana, the Capital of Marôantsétra province.
Ambátomášina	1.15	150	Beautiful level green lawn and shrubbery, cross the R. Vinánitelo in canoe. Ambatomasina is the most important place for trade in prov. of Marôantsétra.
Andránofôtsy	4.30	300	Road through level wooded country a few miles from shore, crossing the R. Antainambalana and Fitarihana in canoes.

Towns or villages (many others exist besides those men- tioned).	Distance in Time.	Approximate No. of Houses.	Remarks.	
Navána	H.M. 3.30	30	Through rice-fields and marsh, very difficult on account of deep mud, and over high forest-covered mountain down to Navana.	
Mâhalêvona	1.30	150	Road goes inland over flat park like grassy country with numerous shrubs and clumps of trees.	
Fizôny.....	2.40	20	Road proceeds up valley and crosses the R. Mahalevona many times, passing through village of Ambôdipâka (30 hss.).	
Manâkambahiny	7.30	20	Through thick forest mostly, and crossing the R. Sâhafihitra about 40 times.	
Anjâlajâla	4.0	5	Mostly through open country, along the banks of R. Sahafihitra, crossing and recrossing it many times. High hills on each side covered with forest.	
Mârovôngo	2.0	25	Country similar to that of previous stage.	
Andrânovôlo	2.15	35	Hilly country with forest patches, the rest mostly covered with cardamom, bamboo, and rice.	
Mâromandîa	2.0	40	Maromandia is on south-east bank of R. Sahafihitra.	
(=Ambôhipantâka)				
Ankâzohârana	1.30	20	More or less open country. Not far from Ankazoharana is another village, Antsâhanandriana (20 hss.).	
Antânandâva	2.30	25	On S bank of R. Sahafihitra. Low hills largely occupied by bamboo and cardamom.	
From Antanandava we turned east and then south and proceeded as far as Ngontsy. The road to the north goes direct from Antanandava to Antalaha.	Andrarôny	4.30	12	Over low hills and through a forest. Andrarony is on sea-shore.
	Andâsibê...	3.0	12	Small village on sea-shore.
	Andrânovêlona	3.0	200	A mile or two from shore, largely surrounded by swampy ground. Residence of the Gov. of prov. of Anônibê; quite recently, however, he has removed with his staff to Antalaha.
	Anônibê ... (An(g)obe)	2.30	25	Village on sea-shore. The majority of the houses were unoccupied at the time of our visit (as was the case with some other villages in the province) owing to oppressive "fanompoana" and various monetary exactions. The village derives its name from the river close by, which the natives call An(g)obe. It is crossed by canoe.
	Ngontsy ...	30	150	Considerable-sized village at time of our visit owing to its being central place of a timber Company. Ngontsy is really the name of a small island close by, and Androhombazâha (the "Vazaha's stockade") the name of the village. It is on the coast line. A rather large Betsimisaraka burial-ground just north of Anonibe.
Antalaha.....	10 or 12 hours N. of Ngontsy	150	A place of some commercial importance. The road from Ngontsy runs along the sea-shore, sometimes among the trees, sometimes on the sand. At a spot called Ambâtôfaingainy there is a large mass of amygdaloidal basaltic lava. The forest here is several miles inland.	
Tampôlo	5.0	10	Small village on sea-shore. Between Antalaha and Tampolo the road passes through delightfully beautiful country, with clumps and patches of forest, and level ground covered with short green sward. The R. Mânânarabê is crossed by canoe. The road is mostly a mile or two from the coast. There is a low hill range composed of basalt about ½ mile from sea. Not only this locality, but the greater part of the east coast, is flooded with lava, mostly of a basaltic character (chiefly dolerite), though in some places, owing to its denudation, the underlying gneiss comes to the surface.	
Andrapaingô	1.30	20	Small village near the sea.	

Towns or villages (many others exist besides those men- tioned).	Distance in Time.	Approximate No. of Houses.	Remarks.
Andémpana	H.M. 3.0	10	Road passes through grassy land a little inland. Cross R. Isàhana by canoe.
Maèva	4.30	12	Road passes over mostly flat grassy land some distance from sea. R. Lolôha crossed by canoe.
Sàhambàvany.....	5.0	80	A village of some commercial importance, generally mis-called "Sambava" by foreigners. Road from Maèva runs over long low grassy plains.
Isoàvinandriana.....	1.0	150	Cross R. Sahambavany at once by canoe, then through pretty grassy low-hilled country and woodlands to Isoavinandriana, which is two or three miles from the sea, where the Governor of the small province of Sahambavany (or Isoavinandriana) resides. The village of Isoavinandriana strikingly reminds one of Môramànga, between Capital and E. Coast. The country here is covered by very fine-grained andesitic-basalt.
Ankarônga	3.0	12	Over hills and through thickets and forests to Ankarônga, or, as the Hova call it, Ankarongana, the final syllable <i>na</i> in most provincial names being merely a Hova addition. The village is situated 2 or 3 miles inland. The valleys heraway and further north contain great quantities of the <i>Rofia</i> palm.
Bèmanèvika	2.0	25	Village about a mile north of the R. Bèmarivo ("broad but shallow"), a broad but very shallow river, but still in one or two places requiring canoe.
Màhanàra	3.0	12	This village, which is on the shore, is on south bank of R. Mahanara. Road from Bèmanevika mostly passes over level ground with tall grass and through patches of forest.
Tsàraràvina	4.0	12	Village about 3 miles inland. After crossing the Mahanara in canoe and passing through a few forest patches, the path leads over a series of bare undulating hills to Tsararavina. The large central forest far away in the interior.
Antetèzampàfana	3.0	10	Country still much the same. The village a few miles from sea.
Ampànobè	3.0	6	Village five or six miles from sea. Road passes through country with numerous hills and hill-ranges. A small wood here and there.
Ambòaniho.....	4.0	150	Chief town of province of Ihàrana, about $\frac{1}{2}$ or 1 mile from sea-shore. R. Fanàmbana, a mile or two south of Amboaniho, crossed by canoe. Country from Tsararavina not very attractive. Rock hereabouts mostly purplish quartz-porphry breccia.
Vòhimàrina	2.30	200	A town of commercial importance, from which large numbers of cattle are exported. It lies along the shore with a mangrove swamp and a large plain behind it. Often called "Vohimaro" by foreigners. Road from Amboaniho to Vohimarina over low grassy hills near sea. The rock hereabouts is felsite breccia. The population becomes more and more sparse from here to Antomboka, but there are numerous herds of cattle.
Ambòdimadiro	3.0	6	Road strikes somewhat inland, passing over very sandy grassy uninteresting hills. The actual sea-shore is only followed here and there from Antalaha right up to Antomboka, though the road is never many miles inland. Here, or a few miles south, is about the southern limit on the east coast of the <i>Satramira</i> fan-palm, where dwarfed specimens occur.

Towns or villages (many others exist besides those men- tioned).	Distance in Time.	Approximate No. of Houses.	Remarks.
Mānambāto	3.0	6	Road, 5 or 6 miles inland, runs among big bare hills. Waded the R. Manambato.
Ambātobè	3.0	6	Village five or six miles from sea. <i>Satramira</i> fan-palm increasing in abundance, also a tamarind tree to be seen here and there. Road still runs among big bare hills.
Andràvina	4.30	30	Consists of several scattered hamlets about a couple of miles from sea. The country hereabout covered with patches of sand. This is apparently not blown sand, but sedimentary, pointing to recent uprise of land.
Bétamāngo	2.30	12	Low hills. <i>Satramira</i> and <i>Satrambe</i> fan-palms very abundant, especially the latter; also <i>Vōavōntaka</i> . Saw eight wild-boars scampering over the hills.
Andāfiandréfandokia ..	4.30	6	Two small villages on each side of the mouth of R. Lokia.
Andāfiatsinānandokia ..	6.30	12	Village about 2 miles north of R. Rodo (crossed in canoe) and 4 or 5 miles from sea. Between R. Lokia and R. Rodo a fine range of mountains runs near the sea and is composed partly of sandstone, but mostly of Oolitic limestone.
Rōdo	7.0	200	Chief town of Antōmboka province, on a hill whose highest point is 1430 feet above the sea, and capped by a recent deposit containing sea-shells of still living species, showing recent elevation of the land. The road from Rodo runs first over sandstone hilly ground, then over bed of olivine-basalt that has flowed from Ambōhitra mountain.
Ambōhimārīna	4.30		Road over comparatively level grassy country, the rock being olivine-basalt all the way. Solitary shrubs.
Diego			
DIEGO TO ANDRA- NOSAMONTA.			
Diego			
Ambibaka	4.0	6	Small village N.E. foot of Ambohitra mountain, which is an extinct volcano.
Sajōavāto	7.0	20	Road still over lava bed. Country bare except in valleys.
Anivorāno ..	4.30	40	Consists of several neighbouring hamlets. Tanāvō is a crater lake about a mile and a half away. It is about a mile in diameter. Guinea-fowl begin to get numerous. There are three roads to Isesy; we chose the easternmost.
?	4.0	6	Small village recently built at western foot of central mountain range.
?	4.0	4	Another small village of no account.
Encampment	7.0	—	Encamped by a small stream in a shrubby valley.
Isesy	4.0	60	An important village in Antankarana province near west foot of central mountain range. The country from Anivorano to Isesy by this route is mountainous and well-wooded, the rock being at first Oolitic limestone, afterwards sandstone, both being of Jurassic age.
Māhavāry ..	4.30	20	A village on south side of river of same name, which can be waded in the dry season. Road from Isesy on sandy plain two or three miles from central hill range. The plain reaches from the foot of the central mountain range to the sea, varies from eight or ten to twelve or fourteen miles in width, extends from about Anivorano to a little south of Ifasy, and is covered with isolated bushes and trees and small woods, while the central range is covered with forest, except at its northern end.

Towns or villages (many others exist besides those men- tioned).	Distance in Time.	Approximate No. of Houses.	Remarks.
Ifasy	H.M. 5.30	90	Probably the largest and most important village in Antankarana. Mangrove swamps on coast from here southwards are large and numerous.
Ambàtoharàna	7.30	30	Consists of several small hamlets of about half-a-dozen huts each. From here to Ampàmpana the road leads mostly over hills and through valleys rich in wood-land.
Màroamàlo	3.30	30	At the west foot of Ikàlabènòno mountain. Forest still thick and continuous on the slopes of the central range, but largely fired by the natives.
Ampàmpana	7.0	40	A village on the large alluvial plain formed by the River Sambirano. Several Sakalava hamlets near.
Sàmbiràno	4.30	60	Road to Sambirano partly along the large plain and northern bank of R. Sambirano, which, although one of the largest rivers on the north-west coast, may be waded in the dry season. Sambirano consists of two small villages, one on each side of the river and about a mile from the sea.
Jangòà	3.30	60	Consists of three or four villages in a valley through which R. Jangoa flows.
Mèlaka	3.0	30	On sea-coast.
Ambòdimadiro	2.c	80	On sea-coast at the foot of Ampàsindàva Bay. The road from Melaka to Ambodimadiro varies according to whether the tide is in or out, one of the two roads being twice the distance of the other. The country from Jangoa to Ankaramy is very beautiful, mountainous, and mostly well-wooded.
Ankaràmy	7.30	100	Here was stationed the chief Hova camp on the north-west coast during the Franco-Malagasy war. The village is about 15 or 20 miles from the sea, considerably to the east-south-east of Anorontsanga.
Bezàvona	7.0	8	A small village at the foot of the mountain of Bezavona, east of Anorontsanga. Road well-wooded, but very bad in places for travelling. The rock of this mountain is the very uncommon one named Foyaite.
Anòrontsànga	4.0	300	Consists of two villages: Andrànto on the coast, chiefly inhabited by Makoa, etc., and Anorontsanga, the Hova stockade, a mile or two inland, from which there is a magnificent prospect of mountain, wood, and sea.
Andròvahônko	6.0	6	By canoe across the bay and up a river running through immense mangrove swamp.
Andrànomalàza	7.0	120	A place of some importance on east side of Gulf of Andranosamonta (Port Radàma). Road from Androvahonko runs over low hills, with scanty vegetation and occasional woods. R. Andranomalaza crossed in canoe.
Mahitsihàzo	3.0	80	A village a mile or two from coast.
Andrànosamònta	2.30	150	One of the most important commercial places on the north-west coast. It is situated at the extreme end of the Gulf of Andranosamonta.—R. BARON. (ED.)

NO. V.—LIMITS OF THE PROVINCES.

THE limits of the provinces (i.e. portions of the island under a Hova governor) from Tamatave round to Mojangà, as far as the coast-line is concerned, are as follows: (1) *Tamatave*, southern limit Ifàsanàsy, northern limit Ifontsy; (2) *Màhavelona* from Ifontsy to the River Fànofaràna; (3) *Ma-*

hàmbo from R. Fanofarana to R. Azàfy; (4) *Vohimàsina* from here to R. Mânankatàfana; (5) *Vôngo* on to R. Anovè; (6) *Mânanàra* reaches as far as R. Fânanèhana; (7) *Mardantsètra* includes the whole of the coast-line enclosing (east and west of) Antongil Bay; (8) *Anònièè* stretches from the southern point of the promontory forming Antongil Bay, and proceeds along the coast as far as R. Lokôho; (9) *Sahambavany* from here to R. Bèmarivo; (10) *Ihàrana* on to R. Lokia; (11) *Antômboka* includes the northern end of the island and stretches down to the R. Ampôndrabè (or Antetèzambato?), S.W. of Nòsibè; (12) *Anòrontsànga* from here south as far as R. Mèvaràno; (13) *Mojanga* is to the south of this.

How far these provinces extend inland I know not, in fact, some of the limits are evidently ill-defined; for example, both the Governor of Iharana and the Governor of Antomboka lay claim to the country round about Ifasy in the Antankàrana country, for at the time of my visit I found a representative of each of these officials at Ifasy. It will be noted that some of the provinces are very much larger than others; for example, the provinces immediately north of Tamatave, as well as Sahambavany, are quite small in comparison with some others. Moreover, the number of honours a governor possesses bears some relation to the size and importance of the territory over which he exercises sway.—R. BARON. (ED.)



THE MAMMALS OF MADAGASCAR:

MALAGASY ANIMALS ARRANGED ACCORDING TO THE NATURAL ORDERS, WITH NOTES ON THEIR HABITS AND DISTRIBUTION.

PART I.

CHAPTER I.—GENERAL CHARACTERISTICS OF THE MALAGASY MAMMALIAN FAUNA.

IN the four last numbers of the ANNUAL I endeavoured to bring together all available information with regard to the Birds of this great island, and also to point out some of the popular notions respecting them, as shown by native proverbs, superstitions, and folk-lore. I want in this and succeeding papers to do something of the same kind for the Mammalian fauna of Madagascar, and to collect all the facts to be obtained with regard to the animals of the country, as well as the references to them in Malagasy popular sayings and beliefs. These are, however, much less numerous than in the case of the birds, at least as regards Hova proverbs and folk-lore, for the majority of the animals belong to the forest and coast regions of the island. Did we know more of the folk-lore of the outlying tribes, doubtless much more light would be thrown on their notions regarding many of the animals of the country.

Before describing the Malagasy Mammalia in detail, something must be said about the peculiarities of the fauna of the island taken as a whole.

A large extent of country in Madagascar is covered with forest, a belt of which, broad in some places and narrow in others, is believed to surround the island in an almost unbroken line; while there is, in addition to this, a considerable tract of country, less densely wooded, occupying much of the western and southern plains. Here, then, there appears to be a congenial habitat for a vast number of living creatures—birds, reptiles, and arboreal mammals—in the thousands of square miles of woods, which cover not only a great portion of the warmer coast region, but also the eastern slopes of the elevated interior highlands.

From these circumstances, as well as from the variety of other physical conditions prevailing in the country—mountains and open downs, cool interior highlands and sultry tropical plains, fertile river valleys and (in the south-west) arid deserts—it might be supposed that Madagascar, situated, as it is, almost entirely within the tropics, would be abundantly filled with animal life. But it is not so, at least, not nearly to such an extent as one would expect; and a stranger crossing the forests for the first time is always struck with their general stillness, and the apparent scarcity of animal life along the route. The fauna of the country does, it is true, include some most interesting and exceptional forms of life, but it is almost as remarkable for what is omitted in it as for what it contains. Not only so, but from the position of the island with regard to Africa—being separated from it by a sea only 230 miles wide at its narrowest part, a distance further reduced by a bank of soundings to only 160 miles—one would also suppose that the fauna of the island would largely resemble that of the continent. But it is remarkably different: whole families of the larger Mammalia are entirely absent; there are no representatives of the larger felines, no Lions, Leopards, or Hyænas; none of the ungulate order, except a single species of River-hog, sole relative here of the Hippopotamus,* no Rhinoceros, or Buffalo; and there is no Zebra, Quagga, or Giraffe, or any of the numerous families of Antelope which scour the African plains. There is no Elephant browsing in the wooded regions of Madagascar, and, stranger still, there are no Apes or Monkeys living in its trees. The few Horses and Asses existing in the island are of recent introduction by Europeans; even the humped cattle, which exist in immense herds, are not indigenous, but have been brought at a somewhat remote period from Africa; and the hairy fat-tailed Sheep and the Goats, as well as the Swine and Dogs found in Madagascar, are all of foreign introduction.

But notwithstanding all that, the zoological sub-region, of which Madagascar is the largest and most important portion, is pronounced by every naturalist who has studied it to be one of the most remarkable districts on the globe, bearing, says Mr. Alfred R. Wallace, "a similar relation to Africa as the Antilles to Tropical America, or New Zealand to Australia, but possessing a much richer fauna than either of these, and in some respects a more remarkable one even than New Zealand.†

* There was, however, formerly a small species of Madagascar Hippopotamus, apparently only recently extinct, for its bones are found in a sub-fossil state, as will be noticed more fully further on. See also p. 27, *ante*.

† The whole surface of the globe is divided by Mr. Wallace into six zoological "regions," in each of which broad and clearly marked distinctions are shown to exist in the animal life as compared with that of the other great divisions. Each of these regions is again divided into

The Madagascar fauna is very deficient in many of the orders and families of the Mammalia, only six out of the eleven orders of terrestrial mammals being represented,* but some of these, especially the Lemuroidea among the Quadrumana, the Viverridae among the Carnivora, and the Centetidae among the Insectivora, are well represented in genera and species.

No less than 40 distinct families of land mammals are represented in Africa, only 11 of which occur in Madagascar, which also possesses 4 families peculiar to itself.† The following is a list of all the genera of Mammalia as yet known to inhabit the island, together with the number of species belonging to each, these latter, including well-marked varieties, now amounting to 96 :—

PRIMATES	Species and Varieties	Species and Varieties	Species and Varieties
SUB-ORDER LEMUROIDA			
Propithecus	8	Vespertilio	1
Avahis	1	Miniopterus	2
Indris	1	Emballonura	1
Lemur	15	Trienops	2
Hapalemur	2	Taphozous	1
Lepilemur	4	Nyctinomus	6
Phaner	1	Rhinopoma	1
Mirza	1	Myzopoda	1
Cheirogaleus	5	CARNIVORA	
Cheiromys	1	Genetta	1
CHEIROPTERA		Viverra	1
Pteropus	2	Cryptoprocta	1
Cynonycteris	1	Felis	1
Phyllorhina	1	Galidia	5
Vesperus	1	Eupleres	1
Vesperugo	3	INSECTIVORA	
Scotophilus	2	Sorex	2
		Microgale	3
		Hippopotamus (<i>sub-fossil</i>)	
		Eluromys	1
		Geogale	1
		Oryzorictes	2
		Centetes	1
		Hemicentetes	3
		Echinops	1
		Ericulus	2
		RODENTIA	
		Hypogeomys	1
		Nesomys	2
		Brachytarsomys	1
		Hallomys	1
		UNGULATA	
		Cheiropotamus	1

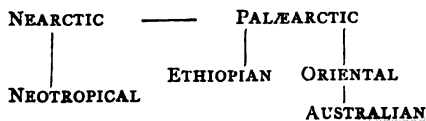
We have here a total of 43 genera, and 96 species and varieties of mammals, many of the genera being peculiar to Madagascar. All the species are peculiar, except perhaps some of the wandering Bats.

The assemblage of animals above noted is remarkable, and seems to indicate a very ancient connection with the southern portion of Africa, before the Apes and almost all its present ungulates and felines had entered it, no doubt from the north. The presence of nearly a hundred species of mammals is a certain proof in itself that the island has once formed part of, or has been very closely connected with, a continent; and yet the character of these animals is altogether different from the

* These are, Primates, Chiroptera, Insectivora, Carnivora, Ungulata, and Rodentia.

† Cheiromyidae (1 genus and 1 species, the Aye-aye); Indridae (3 genera and 10 species and varieties); Lemuridae (6 genera and 28 species and varieties); and Cryptoproctidae (1 genus and 1 species, the *Fôsa*).

"sub-regions," Madagascar and the neighbouring islands forming the "Malagasy Sub-region" of the "Ethiopian Region," the latter being a zoological division which includes Africa south of the Tropic of Cancer, together with its islands, excepting the Cape De Verde group. The following diagram shows the geographical position of each region, and, to a considerable extent, their relation to each other:—



assemblage now found in Africa or in any other existing continent. A very slight acquaintance with the present fauna of Africa would at first sight prevent us from thinking that Madagascar could ever have been united with it; and yet, as the Tigers, the Bears, the Tapirs, the Deer, and the numerous Squirrels of Asia are equally absent, there seems no possibility of its having ever been united with that continent. Let us then see to what groups the Mammalia of Madagascar belong, and where their probable allies must be looked for.

It will be seen from the tabular list already given that the most prominent feature of the Madagascar mammalian fauna is the lemurian, the 10 genera and 39 species and varieties which are here represented forming about four-fifths of the whole mammalian population of the island. The Lemurs, which are the most lowly organized of the Quadrumana, and probably also the most ancient animals of that order, are still found scattered over a very wide area; but they are nowhere so abundant as in Madagascar, having doubtless been elsewhere largely exterminated in the struggle for existence by the later developed Monkeys and Apes. Straggling and disconnected examples are, however, found, ranging from West Africa, where there are two endemic forms, to Southern India, Ceylon, and Malaysia. The Lemuroida of these regions seem to hold their own by their nocturnal and arboreal habits, being mostly found in dense forests. The African forms of Lemur seem not more closely allied to those of Madagascar than are the Asiatic forms, so that it appears probable that all these animals are but the remains of a once widely-spread and much more numerous group. This is confirmed by the fact that lemurian animals once inhabited North America and Europe, and possibly the whole northern hemisphere, as their remains have been found in Eocene deposits of the Jura and of South-west France, and in the Upper Eocene of Paris.

The 25 species of Bats need not detain us at this point, as they are all, as might be supposed from their powers of flight, more or less nearly allied to forms found in other parts of the world.

We then come to the Carnivora, which are represented by a peculiar jaguar-like animal, the *Cryptoprocta*, which forms in itself a distinct family and has no near allies in any other part of the globe, and by nine Civets, belonging to genera peculiar to this country. "Here we first meet with some decided indications of an African origin; for the Civet family is more abundant in this continent than in Asia, and some of the Madagascar genera seem to be decidedly allied to African groups." Although now almost confined to the Ethiopian and Oriental regions, the Civets were abundant in Europe during the Miocene period.

Coming to the next order, the Insectivora, we find them represented in Madagascar by two families, one of which, the Shrews, is found over all the continents; but the other, the Centetidæ, is all but confined to this island, none being found anywhere else on the globe except one genus in the West Indies, in Cuba and Hayti; "thus," says Mr. Wallace, "adding still further to our embarrassment in seeking for the original home of the Madagascar fauna." This group, however, is, like the Lemuroida, of high geological antiquity, and is found in numerous peculiar forms in various parts of the world; but in no equally limited area are so many distinct types found as in Madagascar.

The Madagascar Rodents consist only of five Rats and Mice of endemic genera, one of which is said to be allied to an American genus; but it is probable that in this order other species will still be discovered.

As regards the last order, the Ungulata, this is represented in Madagascar by but one living species, a River-hog allied to an African species, and by an extinct form of Hippopotamus. But, from the semi-aquatic habits of these animals and their powers of swimming, it appears probable that their presence in the island is explained by a former more close connection with the neighbouring continent.*

For a full discussion of the difficult problem of the derivation of this very peculiar fauna, I would refer the reader to Mr. Wallace's interesting work *Island Life*, ch. xix.; I can only here indicate in a very brief fashion the principal points which now appear pretty well established from a consideration of all the available facts. If we bear in mind the special and isolated character of many of the Madagascar birds, as well as the Asiatic affinities of some; the peculiarities of the mammalian fauna, as just detailed; the Oriental and American relationships of many of the reptiles; and the Oriental, Australian, and even South American affinities of some of the insects; and if to these facts we add the geological character of the island, and the now well-known conditions as regards the depths of the surrounding ocean, the following deductions may be fairly drawn:—

Madagascar is a very ancient island, geologically considered, and many of the animals now found here are very antique forms, survivals of a once much more widely-extended fauna, which in early times was spread over the continents, but has in them become nearly or quite extinct through the introduction of other forms of animal better fitted to survive in the struggle for existence. In this great island, however, cut off from the fiercer competition of continental life, many of these earlier types, e.g., the Lemurs and the Centetidæ, have held their own, and so Madagascar has become, to a certain extent, a kind of museum of ancient forms of life to be seen nowhere else on the globe. There can be no doubt that Madagascar had anciently a much closer connection with Africa than exists at present, and that from that continent most of its present fauna was derived, before, however, Southern Africa had received from the Euro-Asiatic continent most of its present characteristic animals. At the time when Madagascar was thus more closely connected with the continent, Southern Africa was probably a large continental island, like Australia, separated from its northern portion by a shallow sea, now represented by the Sahara and the Arabian deserts. About the same time also it is probable that numerous groups of islands, now represented only by still slowly sinking banks and atolls in the Northern Indian Ocean, brought Madagascar into much closer connection with South-eastern Asia, and so some of the Oriental and Australian affinities of its fauna are perhaps accounted for. And as for the likeness of some of its forms of life (e.g., the Centetidæ among Insectivora, the *Urania* among Butterflies, and some of the Serpents and Tortoises

* For the substance, and in many sentences the wording, of the three preceding pages, I am indebted to those valuable works of Mr. Wallace, *The Geographical Distribution of Animals*, ch. xi., vol. i., and *Island Life*, ch. xix.

among reptiles) to the living creatures of still more distant countries, these are no doubt only remnants of a fauna once spread over all the intervening regions, but now found only in such widely-separated islands as Cuba and Madagascar.

It will be evident therefore that although the mammalian fauna of Madagascar consists, except in the case of some of the Lemurs, chiefly of small and inconspicuous animals, many of these creatures are of exceptional interest to the zoologist, and throw no small light upon earlier conditions of life upon the earth.

I will now proceed to note down all particulars I have been able to obtain of the Malagasy animals, taking them in the order shewn on page 69.

CHAPTER II.—QUADRUMANOUS ANIMALS: THE LEMUROIDA, THEIR STRUCTURE AND CLASSIFICATION.

As already indicated, the great order of Quadrumana is represented in Madagascar only by a number of species of the sub-order Lemuroida (Lemur-like animals), the true Lemurs being only found in this island. From the fact that many of these animals are nocturnal, and especially because those species which were first known to European naturalists were exclusively so in habit, came the name which Linnæus gave to them of Lemur, from the Latin *lemures*, "ghosts." The Lemurs can be easily distinguished from the Monkeys and other animals. Few people have seen them in their native haunts, but the differences between them and the other Quadrumana will be recognized by any visitor to a well-appointed zoological collection. Their large ears, great staring eyes, fox-like muzzle, and thick fur, as well as the proportions of their limbs, mark them very distinctly from the grotesque half-human appearance of most Monkeys, as well as from the Apes and Baboons. And while the Monkeys mostly sleep at night, and are lively and active by day, most of the Lemurs in captivity, on the contrary, are roused up with difficulty in the daylight, but at night are most active, rushing about, and jumping hither and thither in their limited space.

The following particulars as to the structure of the Lemurs are condensed from Dr. Murie's and Prof. Martin Duncan's description of this group of animals in *Cassell's Natural History* (vol. i., pp. 211-215).

The Lemuroida as a group have some general characters in common. Firstly, they are mostly quadrumanous, and the hinder thumbs are in most of them very large, strongly opposable to the other digits, and capable of much movement. Furnished also with well-made thumbs on the hands, they have great power of grasp, and clasp boughs and large creeping plants during their active climbing and jumping. Then there are special structures on the tips of the fingers; these are a flattening of the tips into disc- or button-shaped pads, on the upper surface of which is the nail. These rounded tips are well supplied with sensitive nerves, and hence they are not only cushions, but very fine points of touch. Their use is evidently connected with the Lemurs' extremely agile boundings from branch to branch during the hours when there is little or no light. The sense of feeling, then, replaces that of sight to a great extent, and the supply of nerves is sufficient to excite the muscles of the fingers and

hands, toes and feet, to hold on at the least touch ; while the cushions of fat prevent the extremities from being jarred. These curious tips give a somewhat clumsy appearance to the digits, even when they are extremely small. There is a considerable variety among the different species with respect to the length of the fingers ; in two forms the index finger is very reduced in size, sometimes to a mere knob ; and the result is to divide the hands, as it were, into two opposing portions, giving a grasp like that of some of the climbing birds, the Parrots, for instance. These kinds of Lemuroida creep slowly towards their insect prey, and clasp the branches firmly before they jump upon it.

Besides the peculiarities of hands and feet just mentioned, these animals have very powerful muscles and tendons, as well as remarkable mobility in the joints of the limbs, all combining to give them rapid action and prehensile power. From this also comes the ability of some species to rest on the hind legs and to jump like a Kangaroo. In these the ancle bones are extremely long, and enable the animal to leap high in the air, or from branch to branch. There is nothing like this in the structure of the Monkeys.

The woolly fur of the Lemuroida, and their cylindrical woolly tails, at first sight appear to be encumbrances to an active animal living in the tropics, but they are all extremely chilly creatures and love heat ; and it is probable that severe falls are rendered less harmful by the deadening influence of a soft fur. The tail is very long in some kinds, although hardly existing in other species, but it is never prehensile. Probably it is used as a kind of adjuster of movement in rapid exercise, and it certainly appears to be a great comfort to many, for several kinds like to curl it over their backs, or round their necks, like a sable boa, while they are asleep or basking in the sun. In one species of Lemur the tail is supplied with a marvellous set of tendons of extreme complexity.

Some Lemuroids have short, and others have long, muzzles, and there is great variety in the shape of the head. Evidently those with long noses have a very fine sense of smell ; and the whole of the members of the sub-order have a peculiar twist in the nostril, which distinguishes them from all the Monkeys. Some scent out insects and grubs under the bark of trees, and all use this sense in searching for food by night. There are long hairs on the face, like those of a Cat, doubtless, like those, sensitive to touch and helping the animals to avoid danger in moving through the dark woods and bush.

Generally the pupil of the eye is large and round, but in some kinds it is a slit, as in the Cat, dilating or contracting according to the amount of light, and thus fitting the animal for its nocturnal life. There is also another structure, called the *tapetum*,* in the eyes of some Lemuroids, which enables them to make the most of very faint light. This is a layer of fibres behind the sensitive layer of the eye, which acts as a concave reflector, collecting the smallest glimmers of light and making them of use.

The ears of some Lemuroids are small, but in the majority not only are they large, but they possess singular powers of movement, and in some cases can be folded up. The sense of hearing is undoubtedly very acute in the nocturnal kinds, and is of the highest importance to them, both for defence and for obtaining food.

There is considerable variety in the teeth of the Lemuroidea, even among those whose food and habits appear perfectly similar. They are not as tractable or as intelligent as the Monkeys, and their brains are not so well developed, being neither so bulky nor so convoluted. Differing as they do from the great group of the Monkeys, the Lemuroidea still resemble them as a whole more than they do any other animals, and so they are associated with them in the scheme of classification. They belong, therefore, with the Monkeys and with Man, to the Primates; and as they present important differences from the Monkeys, they are classed in a separate sub-order, the Lemuroidea or Lemur-like animals. It is extremely difficult in many instances to distinguish one kind or species from another, in consequence of the great sameness of shape, and the fact that the same individual has a differently coloured coat at various times of his life, and that the males and females of the same kind are often differently coloured. Finally, it may be noticed that the Lemuroidea are confined to the Old World, none being found in America or in Australia; and while Madagascar is specially their home, outlying members of the sub-order are found in West Africa on the one side, and in Ceylon, Hindostan, and Borneo, on the other.

Before proceeding to give fuller particulars of each of the species of the sub-order which are found in Madagascar, a word or two may be said as to the system of classification followed in these papers. I am indebted to the courtesy of M. Alfred Grandidier for a complete list of the Madagascar Mammalia, as far as at present known to science;* and in the tabular lists accompanying these papers his nomenclature of all the species and varieties, as well as his classification of them, is followed. These differ in many points from those preferred by English zoologists; but since M. Grandidier has had the advantage of several years' personal knowledge of these animals in their native home, as he is himself a skilled naturalist as well as collector, and as he has also had, during the preparation of his magnificent work on Madagascar, the collaboration of one of the most eminent of European scientists, M. Alphonse Milne-Edwards, I have considered that the united judgment of two such zoologists has preponderating weight; especially since no English writer of equal attainments has had practical acquaintance with the Malagasy fauna in Madagascar itself.

It may be here noted that for some time French zoologists (MM. Milne-Edwards, Grandidier, Paul Gervais and others) urged that the structural differences between the Lemurians and the other Quadrumana were so great as to warrant the former being placed in a distinct order. Professor St. George Mivart, however, has argued very forcibly† that these differences, although very important, do not warrant the formation of a fresh order;‡ and "that the order Primates is a natural, definite, and convenient one," and proposed instead that the Lemurs and their allies would be best arranged in a sub-order to be called Lemuroidea. This reason-

* See page 69. † See *Proc. Zool. Soc.* 1873, p. 484.

‡ These are: (1) The bell-shaped placenta; (2) the vast size of the allantois; (3) the much uncovered condition of the cerebellum; (4) the cranial structure; (5) the inferior incisors; (6) the structure of the extremities—pollex largely developed, and fingers with discoid terminations; and (7) no decidua and diffuse placenta.

ing has apparently been accepted by French naturalists, although they have not followed Prof. Mivart's classification, which is as follows:—

FAMILIES OF THE SUB-ORDER LEMUROIDA AND THEIR GENERA.

	Genera
	Indris
	Lepilemur
Family I.—Lemuridæ.....	Lemur
	Hapalemur
	Cheirogale
	Galago
	Pterodictus
Family II.—Nycticebidæ	Loris, or Stenops
	Nycticebus
	Arctocebus
Family III.—Tarsidæ	Tarsius
Family IV.—Cheiromyda.....	Cheiromys

The above classification is followed by Dr. Murie and Prof. Martin Duncan, but for the reasons above given I have preferred the arrangement of the French zoologists.

CHAPTER III.—THE LEMUROIDA; THE PROPITHEQUE AND INDRIS LEMURS.

I.—THE PROPITHECIDÆ. The first nine species or varieties of Lemuroida are arranged in a sub-family called Propithecidæ, from the name of the most important genus in it, the Propithecus. Of the nine Lemurs included in the genus *Propithecus*, Buffon says that “they have their own dwelling-place, their natural home, in which they are retained by physical necessity.” “The Propithecus,” says M. Grandidier, “are quite the offspring of the land which they inhabit, and their exactly defined geographical distribution is a proof of the very great influence of physical conditions on the dispersion of the species and even of the races of a country. Some of the varieties, as the *Propithecus Verreauxii* and *P. coronatus*, are only found in the woods scattered here and there in the midst of the desolate solitudes of the southern and western coasts of Madagascar, in sandy plains which fertilizing showers only refresh at rare intervals. Others, as the *Propithecus diadema*, inhabit the narrow belt of forest which extends along the east coast, on the slopes of the great chain of granitic and argillaceous mountains which dip down to the sea, and which are moistened almost daily by abundant rains. There are, besides, not only species, but also races, which are strictly limited to districts from which they do not depart, as if they were separated from the others by an impenetrable wall. It would seem, as we shall see further on, that these animals have a tendency to melanism in proportion as they inhabit more tropical latitudes and more humid regions, and that, on the contrary, they tend to albinism in dry regions and in the south of the island.”

“The Propithecus live in companies of from six to eight. They are diurnal animals; one may see them morning and evening, when the heat is not too great, leaping in the woods from tree to tree in search of their food. Often they may be surprised at sunrise, squatting on the fork of a tree, their long legs bent under them touching the chin, their

hands resting on their knees, stretching out their arms and legs so as not to lose a single beneficent ray of the newly risen luminary. During the great heat they rest hidden on the summits of the highest trees. While reposing or sleeping they place their head on their breast and hide it between their arms, and the tail is either coiled up in a spiral, disappearing from view between the thighs, or else it hangs down quite straight.

"The Propitheques never have more than a single young one at a birth. It is still impossible to form an exact opinion as to the duration of gestation among these animals, which have not yet bred in captivity, but it is believed to be between four and five months. From April, in fact, the females killed are all pregnant, and it is not until September that one sees the mothers with young ones.

"The food of these animals is entirely vegetable. They do not seek, like the other Lemuridæ, small birds, lizards, and insects, but the young shoots of trees, flowers, and berries form their food. Their comb-shaped incisors serve to tear open the skin of the fruits they eat, when they take, as with a spoon, the enclosed pulp. These animals seem to prefer green fruits to ripe ones, and they always reject the skins. As for leaves and flowers, these they grind down with their molar teeth.

"The Propitheques are formed for an entirely arboreal life. The pectoral muscles, as well as those of the thighs, are remarkably powerful; and there is also a membrane along the arms which acts, to a certain extent, as a parachute, and which is edged with thick and long hair, forming a kind of fringe, so that the animals make leaps of from 25 to 30 feet without apparent effort, and they seem to fly through the air. They do not, like the Monkeys and the Makis, go on all fours; their short and retracted arms, ending in long and slender hands, do not allow a continued quadrupedal habit, and they are obliged, on the rare occasions when they leave the woods, to advance by leaps. To see them set out, planted on their immense feet, and lifting at each bound their arms in the air, one would say that they were children amusing each other as to who could leap furthest with their feet tied together. Nothing can be more comical than to see a company of these Lemurs going thus across country in search of some tree, whose fruits and young flowers they particularly like.

"If their long hands do not help them in walking, they hardly serve them better for grasping. The Propitheques, in fact, cannot take hold of objects as other Quadrumana are able to do; when one places a banana or a cooked potato before them, they stoop, so as to take it in the mouth, and then seize it with the hands between the palm and the fingers, without using the thumb. These hands, if not so useful for prehensile purposes, are, however, admirably contrived, as are the feet, for mounting the trees on which these Lemurians pass their lives, whether in feeding on the leaves, or in sleep.

"Naturally sad and gentle, the Propitheques do not attempt to bite, at least not unless one offers to harm them; yet their bite is not to be feared like that of the ordinary Makis. But the males, during the breeding time, live in fierce combat, of which their ears often carry the marks. They do not, like the other Lemurians, make the woods resound with their cries, for they usually remain silent; it is only when they are

frightened or angry that they utter a little cry somewhat like the clucking of a fowl. When one fires at a Propitheeque, and it is wounded, all the other animals of the same company usually wait without stirring, with a certain curiosity, if not with anxiety, for the issue of the occurrence; sometimes they even come near the wounded one. but then, after several shots—for it almost always requires many, because these animals are so formed as to cling closely to the branches—if one falls, the rest immediately leap from tree to tree and disappear. M. Campan, to whom we owe many valuable collections, shot a female, which fell severely wounded in the hands; one of the animals of the company, probably a male, came down from the tree where he was watching and rushed towards a Hova whom he found near him, and who, not having any weapon in his hand, fled as fast as his legs would carry him, although these Lemurs are by no means formidable animals. This Propitheeque received the shot without uttering a cry; and it often happens that when a wounded one has fallen to the ground and is only stunned, as soon as any one comes up, it climbs the trees again and quickly disappears, uttering despairing and heart-rending cries. 'Certainly,' wrote M. Campan, 'I will never again kill these animals for the simple love of sport.'

"The Malagasy, who, like all uncivilized peoples, are great lovers of the marvellous, relate that a female Propitheeque, being surprised with its young one by a hunter, on an isolated tree where it could not regain the woods, placed it on its back and presented its breast to the gun or spear. But one needs not appeal to such a fact, if true, for proof of the maternal affection of these animals, for at the least alarm the young Propitheeque always takes refuge on the back of its mother. and she, curious and restless, turns her head and consequently her breast to the hunter, seeming thus to expose herself to death to save her offspring. The people say that these Lemurs, when wounded by a spear, draw it out from the wound and throw it back at the hunter! This of course is not the exact truth, for when the poor animal feels itself wounded, it often makes a leap, and the weapon falling from the wound falls at the feet of the hunter, who might possibly be hurt, without the animal having anything to do with it, as the Malagasy suppose. These Lemurs, we are assured, both on the eastern and western coasts of Madagascar, chew the leaves, which they apply to the wounds, and which quickly effect a cure. In a word, these animals are not very active, or nimble, or intelligent."

The principal physical differences which authorize us, says M. Grandier, to separate the Propithecidae into three species, consist less in the colour of the skin than in the different proportions of their bodies. *Propithecus diadema* is the largest in size, more thickset than the others, with the tail a fifth less in length than the body; *P. Verreauxii* is less in size, and the tail is always longer than the body; and *P. coronatus* has a peculiar structure of the facial bones.

1. **The Crested Propitheeque** (type), (*Propithecus diadema* (typicus), Bennett), has its habitat on the eastern side of Madagascar, in the forests between Antongil Bay and the River Máhasôra, a distance of 350 miles; beyond this, to the north, the true type species is not found, but a white variety occurs, and to the south of those limits, again is a black

variety. Its colour is silvery grey above, changing to black on the nape and the head, with a white ruff which ends in a distinct curved line on the back; below, the colour is rufous grey. The native name, common to all the varieties, is *Simpona*.

2. **The Silky Crested Propithecus** (*P. diadema*, var. *sericeus*, Milne-Edwards and Grand.) was at first regarded as a distinct species; it is entirely white, except for its dark brown face. It inhabits the narrow forest belt between the River Lokia and Antongil Bay, joining without any break the habitat of the type species. The region is a little hotter and less rainy, the differences being very slight; "are they sufficient," asks M. Grandidier, "to account for the distinct differences between the varieties? It is difficult to say, but the facts are as stated." Native name, *Simpona*.

3. **Edwards's Crested Propithecus** (*P. diadema*, var. *Edwardsii*, Grand.). This variety also, like the preceding one, was at first considered a distinct species. It is black or dark brown in colour, with a light reddish patch on the back and hips. It is found over a wide extent of the eastern belt of forest, from the River Mahasora to the River Mâtitanana, a distance of 150 miles, immediately adjoining (to the south) the habitat of the type species. The district is a trifle less hot than that inhabited by the other, but the soil and the rainfall are much the same. Native name, *Simpona*.

4. **The Black Crested Propithecus** (*P. diadema*, var. *holomelas*). M. Grandidier gives no particulars about this variety. Probably it differs little from the preceding one.

5. **Verreaux's Propithecus** (type) (*P. Verreauxii* (*typicus*), Grand.). Of this second species of this Lemurian, M. Grandidier says: "The bare solitudes of the south of Madagascar have nothing in common with the wooded regions of the eastern coast; they have their own distinct characteristics, few animals and few plants. It is, however, among the small number of animals that inhabit these arid deserts that I found a new species of Indridisidæ, the *Propithecus Verreauxii*, which, both by its appearance and habits, is one of the most curious of the Lemuridæ.

"I found this animal for the first time in June, 1866, in the midst of a small wood entirely stripped of leaves, some leagues north of the village of the Antandroy king, Tsifanhy. I landed about 15 miles north-west of Cape St. Mary (the extreme southern point of the island), and had first to scale the sand dunes which border the coast, and whose level summits seemed a vast fortification made by human hands rather than the work of the winds alone. Arriving at the summit I saw in all directions a vast plain covered with scattered Euphorbiæ and other spiny stunted shrubs, together with the prickly-pear, whose fruits are the principal resource of the unfortunate Antandroy. All around me, as far as the verge of the horizon, I could perceive not the least hill or rising ground; and it was in the midst of this sandy plain that the royal village is built. On my arrival I was surrounded by a crowd of princes and princesses (such princes! and such princesses!), who, finding out the presence of a foreigner and a stranger, came to give me welcome, in other words, to beg presents. While arranged around me, they admired the knives, glass beads, gilt nails, and other articles with which I for the time satisfied their insatiable cupidity, and I then

hazarded some questions upon the animals of the country. I learned from them that there were many *Sifaka* in the neighbourhood. Now I only knew this animal from Flacourt's description : '*Sifak*, guenuche blanche, qui a un chaperon tanné,' and I immediately thought it must be a *Maki* unknown to science.

"Next day, at daybreak, I set off to hunt. My guides directed me to a little wood situated several leagues from the village, where, they assured me, I could not fail to find some of these *Sifaka*. We walked from the morning until nearly noon without having met anything besides one or two birds, when I had the good fortune to perceive among the branches of the trees an entirely white figure, which my native followers pointed to with the finger, crying '*Sifaka ! Sifaka !*' I approached very gently, creeping over the briars, and letting fly both barrels at once, I saw with pleasure an inert mass fall at my feet. It was an old male, and I recognized it immediately as belonging to the genus *Propithecus*. My precious booty being carefully laid on the shoulders of one of my men, I joyfully retraced my steps to my poor hut ; and as there were still several leagues to traverse before regaining the village, I appeased my hunger with some handfuls of raw millet, simply plucked from the stalks, imitating the Antandroy I saw around me, who were munching with pleasure this coarse food, just as a horse munches his oats.

"A dreary country is this part of Antandroy ; with no river, and where the people are obliged to collect water, calabash by calabash, in little crevices at certain favourable spots on the surface, both what they need for drinking and cooking as well as for other purposes ; and this water is impure as well as brackish.

"This same day, after my fortunate hunt, I found no dinner ready, for there was no water. After satisfying myself somewhat, in native fashion, I commenced skinning the precious animal I had killed. At the first stroke of the knife, fifty half-naked natives, hideous in appearance, lean-bodied, and covered with disgusting sores, and armed with their spears and choppers, surrounded me, appearing to take a very lively interest in my work. And I soon found that I was wounding their prejudices in despoiling the *Sifaka* of his skin. What was to be done ? The Tandroy have great personal independence ; they recognize no law or authority. Poor Tsifanihy, descendant of the ancient kings, has hardly any influence over them. Alone in the midst of these savages, who only know how to settle their quarrels by spear and gun, I felt the danger of my sacrilegious conduct. But as I wished much to preserve the spoils of so valuable an animal as this new Propithecus, of which I could not be sure of procuring another example, I pretended not to understand their observations, and without troubling myself with their noisy presence, I quietly continued my work. They were not slow in going out and consulting together. The council seemed to me hot with the animation which the orators displayed in giving their opinions. My work was coming to an end, when the deputation came to me. '*Tsifanihy*,' said the chief speaker, 'is glad that you have had good sport this morning ; he regrets, however, that you have cut up a *Sifaka* in his village. As you are both kings and brothers, he does not blame you ; keep the skin, but, to gratify him, collect together all the fragments of the animal's flesh and allow us to bury them at a distance.' I yielded to the desire of the king. All

savage peoples have their own beliefs and puerile ceremonies, and it is always to the interest of the foreign traveller to respect them. What was requested was done, and they placed over the body of the poor animal some stones, amongst which were planted leaves of the prickly-pear to protect his last resting-place. Sacred although the *Sifaka* may be to the Tandroy, the captain of the *Indefatigable* overcame their scruples by their desire of gain; and promising them a barrel of powder, he procured two specimens which he kindly gave me. These three *Propithecus* were the only mammals which I found in the desolate solitudes near Cape St. Mary.

"Since that time I killed a large number of these animals in different parts of the south-west coast, on the banks of the River Mórondava, and I have had at one time as many as fifteen living specimens. The natives brought them fastened up tightly with cords and so doubled that they could not stir in the least. Poor gentle and inoffensive beasts! Their sad air always moved me to profound pity. It is by means of snares placed in the clearings that the Tàsikóro are able to capture them; but they never live long in captivity. I did, however, take one to Réunion, where it lived for only four months.

"I had at one time a cage in which for forty days I kept two females of this species, who were suckling their young ones. Nothing could be more touching than to see these poor mothers holding these little creatures in their arms. At the least alarm the little *Sifaka* quitted the breast and leaped on its mother's back, where, with its hands placed on her shoulders, and its feet fixed in her fur, it clasped so firmly that I could not make it let go its hold. One could easily understand that it never falls, such is the hold it has on its mother. These little creatures often fought with each other in this cage just like children, now both throwing themselves into the arms of one mother, who seemed to take pleasure in their play, and now trying to leap from branch to branch, one running after the other, and at the least alarm regaining the back of the mother. While I fed my prisoners on leaves and flowers, they never wished to drink water, and when I gave them tender twigs, they would not touch them; it was only when they had no other food but potatoes and bananas that they brought themselves, not even to dip their lips in the water, but only to lick the sides of the vessel. Each time their noses came in contact with the water they retreated, with a comically frightened air. At the end of some weeks their faces became hollow, and their bodies visibly grew thin. They still took from my hand the potato or banana I offered them, but they soon let it fall, as if they could not overcome their great disgust for it, and they died before long."

The habitat of these Lemurians is on the Secondary plains, between the western base of the great eastern chain of mountains which ends at Fort Dauphin, and the River Tsitsibona and the sea, an area of about 50,000 square miles. No other species or variety of *Propithecus* occupies so vast an extent of country. The colour of this animal is entirely greyish white, except a brown cap and brown face. "Examination of the foot," says Dr. Murie, 'proves that it is one, and not a hand, for, bone for bone, it may be compared with the human foot and that of the Apes.'

6. **Decken's Propithecus** (*Propithecus Verreauxii*, var. *Deckenii*, Peters). This is an albino variety of Verreaux's *Propithecus*, being

THE LEMUROIDA: THE PROPITHECIDÆ.

entirely white, without the brown cap and face of the other kind. It inhabits the forests which are scattered here and there over the vast Jurassic plains between the River Mânambôlo and the River Manjaray. This animal is *fady* or tabooed with the Antimailaka tribe, and they will never kill it.

7. **Coquerell's Propitheque** (*P. Verreauxii*, var. *Coquerelli*). This animal is another local variety of Verreaux's Propitheque. Its colour is greyish white, but with warm red on the top of the arms, and a patch of red on the thighs above the knees. Its habitat is the north-west coast, on the southern shores of the Bay of Narindry and the northern side of the Bay of Bêmbatôka, between the Rivers Lôza and Bêtsibôka, that is, in the western belt of forest, in the forest of Manèrinèrina, and on the hills and plains between these two wooded regions.

8. **The Crowned Propitheque** (*P. coronatus*, Pollen). Between the habitats of the two varieties of the second genus of this sub-family of Lemurians (*P. Coquerelli* and *P. Deckenii*) is found a third species, the Crowned Propitheque. This animal, also called *Sifaka* by the natives, inhabits the country of Ibôina, between the River Betsiboka and the River Manjaray. "Is it not remarkable," asks M. Grandidier, "to find the varieties and species of this genus of Lemurian so sharply divided in habitat that one has only to cross a river, often of inconsiderable size, to find one species of Propitheque on the one bank, and on the opposite bank other animals perfectly distinct? To what influences can we attribute all those differences which can be shown to exist between these races? This is very difficult to be accounted for. For while it is easy to understand that animals inhabiting a wooded and moist region in the midst of granitic mountains, like the Crested Propitheque, should differ in size and colouring from their relatives who live in the drier Secondary plains of the west, like Verreaux's Propitheque, how are we to explain the fact that within a few miles', nay, sometimes even within a few yards' distance, the external conditions are so different as to cause the great variations we have already seen to exist? Here is a most interesting problem for zoologists to solve."

9. We now come to another genus (*Avahis*) of the sub-family, which so far is only known by its one species, the **Woolly Avahy Lemur** (*Avahis laniger*, Gmelin). It was discovered by Sonnerat and called by him "*Maquis à bourres*," but by some writers *Lichanotus laniger*, and is said to be more common than the Crested Propitheques or the Indris Lemurs.

The Woolly Lemurs do not live in companies, like the other Indrididæ; they are always found either singly or in pairs. They are nocturnal animals, and sleep during the day squatting on the fork of lofty trees, and it is only at night that they go out to seek their food, which is exclusively vegetable. They are slow in their movements, living in the trees, and at the rare intervals in which they descend to the ground they walk upright like the other Indrididæ, their long and slender hands only serving them for prehension. They bring forth only a single young one at a birth. These Lemurs, being both nocturnal and of small size, have attracted the attention of the natives much less than the Propitheques and the Indris Lemurs, and they have hardly any stories about them. These *Avahy* Lemurs are said to be stupid animals, but since their brain is larger in proportion to the body than that of any other species, it is probable that

this opinion comes from the animals being little known. From this fact some zoologists have proposed to place this genus at the head of the sub-order and nearest to the Monkeys. They have long hind limbs, a long furry tail, a very short muzzle, and a round head. They are small in size, a dried skin measuring not much above eighteen inches from muzzle to root of tail, this latter appendage being thirteen inches long. The general colour is dark grey with a rusty tinge, the face, hands, feet, and tail being reddish brown.

The Woolly Lemurs inhabit the two parallel belts of forest which are found midway on the eastern side of the granitic mountain chain, the watershed of the island, and they also live in the woods of the north-western portion of Madagascar. They are not found in the Secondary plains of the west and south, but on the eastern side, from Vohimàrina to Fort Dauphin (850 miles); and on the north-west they are confined to a narrow space between Mount Ambóhitra and Anòrontsànga. They are also found in the woods of the island of Ste. Marie, off the north-east coast of Madagascar; an interesting fact which suggests that this small island was formerly connected with the great island, as indeed might be supposed from the eastern shore of Ste. Marie forming a continuation of the long straight line of coast of the mainland to the south of it. By the Antankàrana (N.W.) and Bètsimisàraka (E. Co.), they are called *Ampóngy*;* among the Bètaniména (central E. Co.), they go by the name of *Fòtsifè* ("White-thighs") and *Fòtsifaka* ("White-fork"); while the eastern forest tribes term them *Avàhy*, from which word the generic name has been formed.

10. The third genus of the family, from which indeed it takes its name of Indrisidæ, is the *Indris*, with one species, the **Short-tailed Indris** (*Indris brevicaudatus*, Geoff. St.-Hil.; *Lichanolus indri* of some writers). These Lemurs are found only in the central portion of the eastern forest belt, between Antongil Bay in the north, to the River Masora in the south, a distance of about 350 miles. It is remarkable that the habitat of these animals, like that of the Propithecques, is so exactly defined, although the climate, rainfall, and soil of the adjoining regions is apparently exactly similar to those of the country where these Lemurians occur.

These Lemurs are essentially diurnal animals, like the Propithecques; and like them also they live in companies, but of smaller numbers, not more than four or five together; during the day they are often seen isolated from each other, each going his own way. The period of gestation is from four to five months; they never have more than one young one at a birth, and this is carried by the mother on her back. Their hands are, if possible, less fitted for prehension than those of the Propithecques and the Avahys. When they walk, they keep a vertical position, but their life is passed in the forests, where they leap from tree to tree and do not often descend to the ground. This species can be distinguished from all others by its stump-like tail. Generally speaking, the fur is black, but it is marked with white hairs on the fore-arms, back, and hinder quarters. It attains the height of three feet.

M. Pollen, whose researches in Madagascar zoology have been chiefly, although not exclusively, in the north-western parts of the island, gives

* Also, says M. Pollen, *Ampongòy* and *Ampôngo*.

several other particulars of these Lemurs, and of the curious notions of the Malagasy respecting them. Their native name is *Babakoto*, literally, 'Father-child' (or 'boy'), not *Indri*, as said by Sonnerat, who discovered the species. *Indri* (or *indry*) is a Malagasy word meaning 'lo!' or 'behold!' and was probably mistaken by him and other Europeans for a name, when the natives exclaimed: "*Indry izy!*" ("There he is!") Dr. Auguste Vinson says that in passing through the great eastern forest he was assailed during two days by the incessant clamour of these Lemurs, which seem to keep together in large companies, but are invisible in the dense foliage. The natives have a superstitious veneration for these animals and consider them as sacred. They believe that their ancestors change after death into *Babakoto*, and that the trees where these animals live supply infallible remedies against otherwise incurable diseases. The people still say that it is very dangerous to kill these Lemurs with spears, because if a spear is hurled against one of them, it seizes the spear in its flight without being itself hurt, and in its turn spears with certain aim those attacking it. They still relate that when the female has borne a young one, she takes the little creature in her arms and tosses it to her mate, who is seated on a neighbouring tree, and that he throws it back to the female. If the little one does not fall to the ground after being subjected to this exercise for a dozen times, the parents bring it up with the greatest care; but if the contrary event happens, they abandon it, not even troubling to pick it up! In certain parts of Madagascar, says M. Pollen, the people employ the *Babakoto* in chasing birds, and they say that it renders as good service as a dog. These animals, although principally fruit-eaters, do not disdain small birds, which they catch with much skill in order to eat their brains. M. Pollen confirms M. Grandidier's statement that these Lemurs are not found in the north-western region.

This species of Lemur is probably the best known to travellers in Madagascar, at least by ear, as no one can travel along the most well-traversed route in the island, that from Tamatave to Antananarivo, without often hearing them as he passes through the great forest. The animals are not often seen, but their long-drawn-out melancholy cries are frequently heard, a strange wailing sound, as if of people in distress, or children crying. Yet it is always a pleasant sound to myself, as a sign of life, and probably of enjoyment, in these active and harmless denizens of the woods. Dr. Vinson gives the height of the *Babakoto* as 33 inches, and says that the Bètanimèna tribe let these animals at liberty if they find them in captivity, and give them burial should they find them killed. They relate that a certain tribe, at war with its neighbours, took refuge in the forests; their enemies, in pursuing them, and led by the sound of human voices, as they supposed, found before them a troop of *Babakoto*, by whose appearance they were struck with terror. They fled, persuaded that the fugitives had been changed into beasts. These, on the other hand, vowed eternal gratitude to the Lemurs who had saved them, and have ever since religiously refrained from injuring them in any way.

JAMES SIBREE. (ED.)

Note.—It will be seen from the frequent quotation marks in the preceding pages, as well as from what is stated once or twice, that the greater part of this paper is translated from the works of French travellers, to whom we owe the most exact information about the fauna of Madagascar. But I will here repeat that I am indebted for many particulars to MM. Pollen and Schlegel's fine work, *Recherches sur la Faune de Madagascar et ses Dépendances*; but still more to M. Grandidier's unrivalled *magnum opus* on Madagascar, still in progress. I also express my obligations to M. Grandidier for his willingly accorded permission to translate anything I choose from his writings, as well as for his kindness and courtesy in answering the many inquiries I have put to him. — J S.

(To be continued.)

APPENDIX TO CHAPTER III.—TABULAR ARRANGEMENT OF MALAGASY MAMMALS.

ORDER I.—PRIMATES.

SUB-ORDER LEMUROIDA: LEMUR-LIKE ANIMALS.

FAMILY INDRISIDÆ: INDRIS LEMURS.

SUB-FAMILY PROPITHECIDÆ: PROPITHEQUES.

English Name	Scientific Name	Malagasy Names
Crested Propitheeque (type)	<i>Propithecus diadema</i> (typicus, Bennett)	Simpona, N.E. Coast
Silky Crested Propitheeque	<i>Propithecus diadema</i> , var. <i>sericeus</i> (Milne-Edwd. & Grand.)	Simpona, N.E. Co.
Edwards's Crested Propitheeque	<i>Propithecus diadema</i> , var. <i>Edwardsii</i> (Grand.)	Simpona, Betsim. and E. Co.
Black Crested Propitheeque	<i>Propithecus diadema</i> , var. <i>holomelas</i> (Grand.)	Simpona, (?) E. Co.
Verreaux's Propitheeque (type)	<i>Propithecus Verreauxii</i> (typicus, Grand.)	Sifaka, Antandroy (S. Co.)
Decken's Propitheeque	<i>Propithecus Verreauxii</i> , var. <i>Deckenii</i> (Peters)	Sifaka, Antimasilaka (W.Co.)
Coquerell's Propitheeque	<i>Propithecus Verreauxii</i> , var. <i>Coquerelli</i>	Sifaka, Antibôina (N.W. Co.)
Crowned Propitheeque	<i>Propithecus coronatus</i> (Pollen)	Sifaka, Antibôina
Woolly Avahy Lemur	<i>Avahis laniger</i> (Gmelin)	Ampôngy, Tank., Betsim., Fôtsifé, Fôtsiefaka, Belan., Avahy, Tanala

SUB-FAMILY INDRISINÆ: TRUE INDRIS LEMURS.

Short-tailed Indris Lemur	<i>Indris brevicaudatus</i> (I.G. St.-Hil.)	Bâbakôto, Betsim.
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THE RECENT RELIGIOUS REVIVAL IN
ANTANANARIVO AND IMERINA.

HAVING been asked by one of the editors of *THE ANNUAL* to write a short account of the religious revival that has taken place, not only in Antananarivo, but also in many parts of Imérina, during the past two years, I gladly comply with the request, though feeling that some other pen would have done more justice to the subject. But however that may be, no one can have a more firm conviction of the reality of the revival than I have myself.

It has been for years a subject of regret to missionaries in this country that they did not see, in the large number of people professing themselves to be Christians, more decided evidence that they really were such. I suppose that almost all missionaries from Madagascar, when at home on furlough, have been questioned as to the results of the religious work in the island; the number of conversions, etc., etc. To questions such as these, I, at any rate, always gave a cautious answer. Taking our Saviour's test words: "By their fruits ye shall know them," I answered that we believed a large number of these people were what they professed to be, Christians, and that they were accepted as such by Him to Whom the hearts of all men are known. But, at the same time, I always confessed that there did seem something wanting: that we should like to see what we had hardly yet seen, viz. an acknowledgment from the people that they knew they were individually sinners, and an expressed determination in the future to live a higher Christian life.

Over and over again was this subject discussed by the missionaries; they felt it to be a vital point, and they not only talked about it, but prayed about it. For years this went on, and some of us almost began to think that the Malagasy were of different make, shall I say? from ourselves; they would come and talk to us on every subject, save the all-important one, their position in the sight of God. But we never despaired; we knew that a good work was going on, though we were also desiring evidence of a deeper work.

In the month of March, 1891, four ladies, teachers in the two large High Schools for Girls in Antananarivo, were taking a holiday in the country. While there their thoughts were turned to this subject, with more especial reference to the young people, whether scholars in the schools, or those who had recently left. On returning to town they brought the question before those missionaries who were more particularly engaged in education, and after much consideration and prayer it was decided to hold a week of meetings, especially for the young, and the Rev. J. Peill was asked to conduct them, with liberty either to give all the addresses himself, or to ask others to give some of them. These meetings were arranged to take place in the week beginning Sunday, May 10th, 1891. The mornings from Monday to Friday were spent by Mr. Peill in visiting the various High Schools in the city, in which he made earnest appeals to the scholars to give their hearts to Christ. Then, in the afternoons, there were united gatherings in one or other of the

large city churches, which were very numerous attended. Never, I should suppose, were meetings of a similar kind looked forward to so earnestly, I will not say so anxiously, as these. It would be wrong not to mention the many prayers that were put up, asking that a blessing might come. For weeks previous to the time, prayer meetings for this object were held: some by the missionaries conjointly with the Malagasy, others by the missionaries alone, others again by the Malagasy alone; and in many a private household in Antananarivo unceasing prayers were offered to God that He would be graciously pleased to bless the meetings.

So they were begun and continued through that wonderful week; and it is difficult, in looking back upon the time, to write calmly about the results, they were so remarkable and affected so large a number of individuals. Very many then entered into a new existence, and found Christianity not to be a mere *fomba* (custom), but a life, yea, a life of which they had previously had no real experience, and of which they had hardly known the existence. If I am asked for evidence of this, I may say that it is quite overwhelming, and among those who experienced this change were some whom we had previously thought to be Christians. Many made public confession of their sins, but a far larger number came to us privately, and not only made full confession of their past sins, but earnestly sought for help and advice as to how they might live a better life in the future. Yes, we had a new experience of Malagasy Christianity, for numbers came to us, their eyes full of tears, earnestly desiring to be rid of the burden of sin, and asking literally: "What must I do to be saved?" These people, though mostly young, included all classes: teachers and scholars in our schools, servants in our houses, etc.; some came confessing sins of which they had been guilty many years ago; some came bringing back money they had stolen; among this number was a cook in a missionary family, who said he had been in the habit of charging more for articles bought in the market than he had really paid, and thus making a profit out of his weekly visits to the market.

I believe that it is but the truth to say that at these meetings many hundreds were influenced for good; a large proportion of these being, as we say, converted at them. I may also mention another very marked result of these special services: it is nearly the unanimous testimony of the teachers in the High Schools in the Capital, that since these meetings, their work has been much easier; lessons have been far more attentively and conscientiously learned, there has been very much less of objectionable conduct, and at the examinations the practice of copying has almost ceased. I have under my superintendence some thirty or more young men whom we are training for teachers; my native assistants unite with me in saying that our work is altogether different from what it formerly was, and that now we seldom have any complaint to make as to the conduct of the students.

When the proposal to have these meetings was being discussed, the question arose as to whether any of the native pastors should be asked to join in the conduct of them. For reasons which we thought sufficient, it was decided not to ask them, but to keep the services entirely in our own hands. It was an experiment, a new departure, as

it were, and we did not know how far they would be in sympathy with us in the matter; so none of them were asked to speak or take any prominent part. It was with very great pleasure that we noted that so far from being offended by our action, many of the pastors came to the meetings and helped us in various ways, and I believe that with regard to two or three of them especially, they were very much benefited by them.

In May of 1892, the question came up for consideration as to whether there should be another series of meetings, or whether we should wait a while and let the result of those of the previous year further develop. After much consideration it was decided that another week of meetings should be held, and an attempt made to reach not the young only, but all classes; and we unanimously agreed that our native brethren and sisters should be asked to take part. We arranged that every district of the town should be visited, and handbills were distributed inviting the people to the meetings to be held from Monday, May 23, to Saturday, May 28. Instead of having only one meeting each day we had three, held in different parts of the city, but at the same hour; they were, on the whole, well attended, and by all classes of people. It was much more difficult to judge of the effect produced, as they were composed of people much less nearly associated with us than were those of the previous year. But it is believed by many that the result of this second series of meetings was equally encouraging with that of the first. Many cases illustrating this might be given, but I must only mention two or three. A certain woman who attended the meeting every day was completely changed, and it became her great object to be the means of bringing about a similar result in others. Though living in town, she was a native of a large village to the east of Antananarivo; at this place her brother was teacher; he, like many others, was a good respectable man, a nominal Christian, and thought by many to be a real one. His sister visited the village and described what had taken place in town; she told also of the change in her own heart, and of the joy she had in believing; then she set to work to induce others to accept the same salvation. Among those whom she won over was this brother and his wife; they became equally in earnest, and before long offered themselves to the Imerina Missionary Society, and were sent to Ambôhimàrina (Antômboka), at the extreme north of the island, where they have now been nearly a year, and have already been the means of much good in that place.* Another woman, who was a thoroughly disreputable character, attended these meetings, and was completely changed, of which she gave ample evidence; she subsequently married an evangelist, and is now settled with her husband on the north-west coast of the island. There was yet a third woman, living at a dark place in one of the most neglected of our country districts; she was in town, attended one or two of these meetings, and was deeply impressed; she had previously had strong religious convictions, and then decided for Christ. Her husband was at that time a godless man; but when she returned home, she set to work to convert others, as nearly all these Malagasy do when converted, and became a centre of light in her native village, and her husband was one of those she won over.

* Since this paper was written and placed in the editors' hands, I have heard with much sorrow of the death of the wife of the evangelist above alluded to.

These are some of the more striking instances of many that might be given, and it is a matter of continual rejoicing to me that many hundreds of homes are happier and brighter in consequence of these meetings. The effect of this work has been very wide-spread, even many who were unable or unwilling to attend the meetings have been influenced for good. There is evidence of a far deeper spiritual life among the people than there formerly was, and public worship in much more deep and genuine, far more nearly approaching the standard given by our Lord: "They that worship the Father must worship Him in spirit and in truth." This is particularly noticeable in some of the city churches. There has also been a marked increase in the intelligent and systematic reading and study of the Scriptures. Reference must also be made to the various associations for the advancement of the kingdom of Christ existing in the Capital and in Imerina, nearly all of which have made great progress during the past two years. The Bible Society has almost doubled its membership since the first series of meetings took place; a Tract Society has been established, as also other associations for similar good purposes.

What has been written refers mostly to the Capital, but it must not be supposed that other places have not shared in the blessing; in many towns, north, south, east, and west, in places near at hand and far away, similar meetings have been held, and with similar results. Many details might be given, and remarkable cases of conversion related, but I will only give one, the case of a young lad at Ambôhimanga. Words would fail properly to describe his character, indeed in these pages his sins could not be described. One night he obtained the key of the school-room, which he entered, and amused himself by destroying everything he could come across, especially the books, some of which he threw away into the road. But he was reached at some special meetings that were held there, and Mr. Peill, the resident missionary, wrote of him, saying that "all Ambohimanga is astonished and awed at the change that has come over this youth."

Another and more permanent result of these meetings must be briefly alluded to. After the first series in 1891, a desire was felt by many missionaries that the young converts should have some bond of union among themselves, which would not only help them individually to remain firm, but also be the means of their helping others. And so were begun many associations, very much upon the lines of the "Christian Endeavour Societies" of England and America. Almost all the city and suburban churches, as well as many in the country, have now their *Fikambanan' ny Kristiana Tanóra*, as they are called, and in these there must now be a membership of many hundreds. All who join make a simple declaration of their faith in Christ, their desire to serve Him, and their intention to induce others to do the same. The meetings are held weekly, and are all conducted very much on the same lines; the young folks take part spontaneously, and are heartily in earnest in upholding their associations. Many of them are very diligent in doing what they can to relieve the distress around them, visiting the sick and the blind, and helping the poor. On one occasion it was reported at a meeting that a poor woman's cottage was in danger of falling down; so several of the young men volunteered to go and repair it; they went, but the

owner was afraid they might make it worse instead of better, and begged them to let it alone. These societies are thus a continual reminder of that first week of meetings, and I believe that they will prove to be an untold blessing to the rising generation of the Capital and Imerina. They will, I feel sure, be the means of raising to a higher level the Christian life of the people, that they may become more nearly corresponding with the profession they make.

Missionaries are sometimes thought by outsiders not to be aware of the failings of the Malagasy Christians, and that they have the idea that all their converts are pretty nearly perfect. There could not be a greater mistake, for I believe that there are none so cognizant of these failings as the missionaries who mix freely and constantly with them. But it is not ours to be ever proclaiming these failings in public; if they were already perfect, we might have remained at home. There is one thing that I, at any rate, have come in the last two years to know more about than ever I did before, I allude to the temptations that surround these people, especially the young. In the report of my work for the year 1891, I used these words: "As I have talked to these people, whether in town or country, as they have told me of the life they were living, and of the awful temptations by which they were surrounded, I should indeed despair, were it not for the knowledge I have of the power of the Lord Jesus Christ, Who is mighty to save, not only from past sins, but from the power of temptation."

Now, nearly two years afterward, I can abundantly confirm what I said then, and, speaking also for my fellow missionaries, say that we rejoice over the result of these meetings, as we know that so many are now battling with their temptations, refusing any longer to give way before them, unwilling to let the Devil have his own way with them, knowing that, though he is strong, there is One stronger than he; and knowing also that on His almighty strength they may rely for all emergencies of their daily life, and that thus they may more and more be enabled to maintain a religious life consistent with their Christian profession.

HENRY E. CLARK.



THE POPULATION OF MADAGASCAR: DOES IT INCREASE OR DECREASE?

THE population of this island is variously estimated; by some it is put at three million souls, but by most people at five millions. Since, however, only the central provinces and the coast-line are well known to Europeans, as few leave the beaten tracks from the coast to the interior, these estimates can be only guess-work; they may be approximately true, but are equally likely to be wide of the mark. That the native estimate is worthless, almost everyone will acknowledge, as very few, if any, Malagasy have anything like a clear idea of what numbers represent beyond ten thousand. The following conversation which I had with a native gentleman, who had been educated and had had the advantage of having seen different parts of the country, will illustrate what I have said. I asked him if he thought the natives of Madagascar were increasing or decreasing. "Oh! increasing fast," was his answer. I pressed my doubts, and he assured me it was so. I asked him how he knew. "When I was at school," he answered, "there were five millions in Madagascar; are there not fifteen millions by this time?"

There are some facts which are easily overlooked which need to be taken into account in estimating the population of this large island: the first of these is that very nearly if not quite half the island is uninhabited; there is a pretty clearly-defined belt of uninhabited country, cutting off the central provinces from the coast tribes; this comprises nearly all the forest, which, not always worthy of the name, runs round the island almost without a break, I believe, and also the rolling grassy downs between the forest and the central plateau. This uninhabited part averages from about 25 to 30 miles broad on the east, and from 100 to 120 miles on the south and west sides of Madagascar, the coast tribes reaching inland to an average distance of about 30 miles; and the central provinces of Imérina, Antsihánaka, and Bètsiléó being together, roughly speaking, 300 miles long and 70 broad. The next thing to be remembered is, that what population one sees on the tracks from the coast to the Capital is not to be relied on in making an estimate of the population of Madagascar, for the simple reason that most of the villages are government posts formed for communication with the governorships on the coast. These places are still known by the curious name of *láratasy* (letters), and are found at intervals along the chief routes to the interior; but behind these there is often very little if any population on the northern, western, and southern roads, while on the east there is a scanty population to be found in the valleys between the forests. These villages were originally formed to supply couriers for the government despatches, hence their name. In the course of time those appointed to such posts have settled down, and now look on these places as their homes.

However, we are not concerned so much just now in estimating the population of Madagascar, as in the greater and more serious question as to whether the Malagasy are increasing in number, or otherwise; in

other words, are they going to survive civilisation, and rise to it and become a nation, or die out in the process, as other races have done? This is a great question and does not admit of hasty conclusions; and I shall only venture to offer a few observations which may perhaps call attention to the subject. That which is most wanted in an enquiry of this sort is statistics, while, it is needless to say, nothing of the sort is to be had; the value of definite information upon any such subject not being appreciated, as yet, in this country. I have made a few calculations in different parts, however, which I give in lieu of something better. Taking a dozen families living side by side, and comparing the number of children with the adults, on the principle that each couple of adults should rear at least two children to take their places, here are the results: 1st, 12 houses, 24 adults, and 21 children; 2nd, 12 houses, 24 adults, and 31 children, one family supplying ten of these; 3rd, 12 houses, 24 adults, and 22 children; this gives a total of 72 adults and 74 children. Again, 1st, 12 houses, 24 adults, and 26 children; 2nd, 12 houses, 24 adults, and 34 children; 3rd, 12 houses, 24 adults, and 55 children; this gives a total of 72 adults and 115 children. Again, 1st, 12 houses, 24 adults, and 19 children; 2nd, 12 houses, 24 adults, and 29 children; 3rd, 12 houses, 24 adults, and 43 children; this gives a total of 72 adults and 91 children. The result of the whole is a sum total of 216 adults as compared with 280 children.

So much for numbers, but it would be unfair to build up any theory upon them; yet I am prepared to say that they represent pretty accurately what may be observed with regard to the population in the more settled parts of the country.

The next thing to be noticed is that, in the towns of the coast tribes, both on the east and on the west coast, the further one gets inland, the greater number of children one sees; this, I take it, is in proportion as rum is more difficult to be obtained, and wholesome food more abundant; and perhaps the more healthy atmosphere has something to do with it. Something of the same kind is observed in the central provinces, though probably from different causes. In the newly-populated districts of Imerina and Betsileo, the people seem stronger, and more children are born. There are some remarkable instances of single families, which, within memory of those still living, have grown into small clans on going to live in new districts and following agricultural pursuits. I believe the people living at Mānandóna, in North Betsileo, afford a good example of this, and also some of the families west of Ankāratra; and I know of a few more instances of the same kind. I suppose the reason of this is that, in breaking up new ground, more energy and muscle are developed than in the more settled life, where, except during the planting and reaping of rice and other crops, not very much hard work is done.

Large families are not common amongst the Malagasy, either in the central provinces, where monogamy is more or less the rule, or among the less civilised tribes, where polygamy is the rule; and although there are instances of large families of children, as large as twelve and eighteen, to be found now and again, I think comparatively few of these children live to grow up to maturity.

When we come to look into the reason why the increase of the

population is not more marked, there is a good deal to be said. In travelling about the country one is often struck with the number of sites of old villages and homesteads now in ruins. I shall not be exaggerating when I say they are to be seen by scores, not all together, but dotted about. The older ruins may be accounted for partly by the change which has come over the country, governed by a single monarch, instead of by as many kings as there were towns, and when the villages on the hill-tops were the only safe places in which to live. But I do not refer so much to these old hill-top towns, which are generally hidden more or less by the scanty remains of forest, it is the number of ruins of comparatively recent towns to which I refer. There has been without doubt a considerable migration towards the large towns going on for some time, notably towards the Capital. This accounts for some of the ruins, while a good many families from the central provinces have been drafted off for military service in the outlying garrison towns; but these reasons are hardly sufficient to account for the number and frequency of these desolate spots, in which, not only homesteads are vacant, but tombs are sometimes unclaimed; and considering how sacred the Malagasy hold their family tombs, and how much they spend on them, this is a sure witness to the decay and dying out of families.

It is a significant fact too, that the uninhabited western borderland of the central provinces is enlarging. Since the time of Radama I. this region has enlarged from about twelve to twenty miles, and what was, four or five generations ago, a populous and most fertile district, as the ruins of villages and the deserted rice-fields show, is now a barren wilderness, given over to wild-hogs and tall grass. I have crossed that part in six different places, ranging from South Betsileo to the north-west of Imerina, and noticed that the same thing was apparent all along the boundary line. This no doubt has been caused principally by the raids of the Sakalava and other marauders.

After taking this general view, we will come to particulars. Old men, who remember the state of the country before Europeans knew much about it, say that, in the time of Ranavalona I. (1828-1861), there were more people than now, not in the larger towns, but in the country generally; while the younger Malagasy all insist that the population is increasing, though I have never yet got one to give me any good reason for his opinion, except the increase of the Capital and a few other large towns, which increase may probably be accounted for on the ground of migration towards the towns and large markets. It is when we come to enquire into the longevity, health, and habits of the Malagasy, that we see the reason why the population does not increase faster. It is not a common thing to see a really old Malagasy; there are some who look old, but when one enquires, it is often the case that they are not so old as they look; this is especially the case with the women, who age very fast. It is not an unusual thing to find that the oldest person in a considerable village is not over sixty, where we should expect to find several upwards of that age, as we should in an English village, for instance, of the same size. To consider all the reasons for this would make us digress too far, but I will mention one or two which are too often seen to escape notice. Their inveterate love of hoarding and saving causes much unnecessary suffering to the old people. They will

often, to save twopence, allow themselves to get too ill for much good to be done by medicine, when it is offered them; and although they have chickens running about the yard, and are told to take something better than rice, very often they will not venture to kill one, which, by the way, does not mean a matter of three and sixpence, but of one penny three farthings; and in the matter of clothing they are even worse. The disregard of the younger generation (who know better, as a rule) for the well-being of the aged helps to shorten their days. As soon as their aged relatives are dead, the younger people will often sacrifice all they have and go into debt to buy silk *lamba* to wrap them in; but while living, they think very little about their comforts. This one sees constantly in the more civilised parts of the country, but in the less civilised parts this is brought painfully to one's notice. For instance, I have seen old women doubled up with age and trouble, and nearly blind, waiting to gather the bran after the winnowing of the rice, and glad to get it for food; and when too decrepit to do this, or to gather roots and herbs for themselves, they chew clay, if they have nothing better to keep down the craving for food. So much for the older generation, or rather, for the paucity of that generation in Madagascar.

When we come to the question of the health and strength of the people, we find a good many things that militate against the progress of the Malagasy. These are partly due to former customs, which die hard, and are partly due to the climaté. The very high death-rate amongst young children is the first and gravest hindrance; then the frequent sterility of the women, the universality of hereditary disease throughout the island, and the want of proper clothing; this latter applies, however, only to the higher and colder parts. I suppose it would not be too much to say that one out of every four native children dies before reaching the age of three years. There is always some complaint which carries off a number of children, either whooping-cough, small-pox, or something else, in one part of the country or another, and more often in many parts at the same time. And owing to hereditary diseases, many of the children require to be dosed with medicine as soon as they are born to keep them alive at all. This infantile mortality sweeps away the greater part of the overplus of births as compared with deaths. To show how great is the number of marriages without issue, I found, in counting up the families which I mentioned above, that in one case as many as fifteen out of thirty-six couples had no children; and in another enquiry, ten out of thirty-six couples were childless.

Without going into the question of hereditary disease, we cannot overlook the prevalence of leprosy in many parts of the country. To a casual observer this may seem a small item, but to those who know the country, it does not appear so at all. Lepers often hide away, partly from fear of the law, which separates them from their homes and means little less than starvation for them, and partly from shame; but their number is not so small as it would seem; it does not take long to find fifty, for instance, and their miserable state is very deplorable.

We might pass lightly over the matter of dress and clothing, since it does not apply to the tribes outside the central plateaux of Madagascar,

if it were not brought so constantly to one's notice by the prevalence of chest complaints. What the forefathers of these people did to protect their chests from the raw cold of the mornings and the strong keen winds of the higher parts of the country during the cool season, I do not know; but it is very certain that a cotton cloth, with a thin vest of print or hemp cloth underneath, is not the thing for the present generation; and insignificant as this may seem in print, it is a serious matter in fact.*

When we come to the habits of the Malagasy which affect the increase or otherwise of the population, the most notable, especially amongst the coast tribes, is their utter inability to stand against the temptation to drink rum. The rum barrel is the central attraction in all matters public or private in a coast town; they begin the day with drinking and go on into the night. Almost every native is a trader, and almost all keep the rum barrel well forward in the doorway as an advertisement. This applies chiefly to the coast; but the same state of things is beginning to appear in other parts, only bottles take the place of barrels. The bad effects of this habit are seen in nothing more clearly than in the matter we are considering.

The subject of divorce is not one we need enter into, but it cannot be passed over without notice, as its prevalence is one of the greatest hindrances to the progress of the nation; and, unfortunately, little if any improvement can be seen in this matter, except so far as Christianity is taking a firm hold on the people. The still too great prevalence of divorce, and the too early marriages of mere boys and girls, together with the low state of morality, are certainly largely responsible for the absence of any appreciable increase of the population of Madagascar.

I do not think I have overstated the case against the increase of the population in this country; and when what has been said is weighed carefully, one can only wonder that the Malagasy do not diminish more rapidly, as there seems more probability of a decrease in their numbers than of an increase. The reason, however, is probably to be found in the fact that food is cheap and plentiful, while the country is sparsely populated; so that, although there is no attempt at sanitary arrangements of any kind, the air is fairly fresh and pure.

From what has been said it will be seen that it is hardly possible, with the scanty information we have, to say whether the Malagasy, as a whole, are really increasing or decreasing in numbers; but one thing may be said with certainty, viz., that unless some very decided progress in social matters takes place, there is very little hope for the Malagasy as a powerful race of the future, even if they manage to struggle on with the balance wavering as it does at present.

E. O. McMAHON.

* It may be added here, that numbers of very young children of the poorer class, especially slaves, go about in a state of absolute nudity, or with a mere rag round the loins, even in the coldest time of the year, when Europeans are well clothed with thick cloth, and well-to-do natives are muffled up in a blanket as a *lamba*. It cannot be doubted that such exposure must induce chest complaints, which carry off large numbers of infants and young children.

EARLY NOTICES OF MADAGASCAR FROM THE
OLD VOYAGERS, PART IV.:
EXTRACTS FROM THEVENOT'S VOYAGES.*

WITH NOTES BY CAPTAIN S. PASFIELD OLIVER, LATE R.A.

I.—PORTIONS OF THE JOURNAL OF THE VOYAGE OF BONTEKOË;
1618—1624.

“THE truth of this voyage of Bontekoë” (remarks M. Thevenot in his preface) “has been doubted; but in Holland, where several of his crews have been examined (who had fed on the fish caught flying over their boat), it was considered authentic: and, in fact, the blowing-up of Bontekoë is not more difficult to believe than that of the captain of a Dutch ship which, having been attacked by the Turks near the Straits [of Gibraltar] and forced to surrender, in accordance with his oath, set fire to the powder and, after being blown up in the air with all his crews, fell back on the deck of one of the ships attacking him: upon which the enemy made much of him and restored him his life and liberty. The truth of this has been confirmed, and the affair happened not very long ago.”

The following extracts are taken from the narrative or Journal of the Voyage of William Isbrantz Bontekoë, translated by Thevenot from the Dutch text.

“I left Texel on the 28 December, 1618, with an easterly wind, in the ship named the ‘*New Hoorn*,’ as master. Her burthen was 1100 tons, and she carried 206 men. On the 30th we were in sight of Portland, and the same day passed Plymouth. The 1st January, 1619, we passed *Engelant’s End*.”

It took Bontekoë five months to reach the Cape, after passing which he steered for the course to India outside Madagascar, or the Isle of S. Laurent, as Thevenot calls it.

“After having sailed some time, the number of sick (from scurvy) on board increasing greatly, the sailors forced the officers to put in to Madagascar to recruit their health.....It was settled to make for the Bay of St. Lucia, where at first we found no place to anchor; so, lowering a boat, I proceeded to the shore, whilst the ship kept under sail in the offing. I found that the surf broke so heavily along the coast that it was impossible to land. We saw some savages.

* RELATIONS DE DIVERS VOYAGES CURIEUX, qui n'ont point esté publiées; ou qui ont esté traduites d'HACLIVYT, de Purchas, et d'autres Voyageurs Anglois, Hollandois, Portugais, Allemands, Espagnols; et de quelques Persans, Arabes, et autres Auteurs Orientaux.

Enrichies de Figures de Plantes non décrites, d'Animaux inconnus à l'Europe; et de Cartes Géographiques de Pays dont n'a point encore donné de Cartes; [par Melchisidec THEVENOT] à PARIS.

Chez JACQUES LANGLOIS, Imprimeur ordinaire du Roy, Mont Sainte Genevieve, .. M. DC. LXIV. Avec privilege de sa Majesté. (4 vols. fol.)

† The *New Hoorn* took fire and blew up on the 19th November, 1619. Bontekoë went up in the air, but fell amid pieces of the wreck into the sea and reached the floating mainmast, from which he was rescued by one of his boats which had left the ship before the explosion.

who came down to the beach. One of our sailors jumped off the boat and tried to communicate with them, but could not make them understand. They made signs with their hands, which appeared to mean that there were other places where we could land. They had no fresh provisions with them, at least we could perceive none, and therefore we did not stay.... We ran towards the south as far as 29° ; we then put about and sailed till we reached 17° latitude S, when, as the sickness increased every day, and some had died, it was resolved to touch either at Isle Maurice or at Maskarenas, and steered between those two islands, which are not far distant from one another. We arrived at the eastern point of Maskarenas."

[An interesting account of Réunion and Mauritius here follows, with a notice of the Dodo, *Drona* or *Dod-Aers*.]

"The intention was now formed of going straight to Sainte Marie, which is an island very near to Madagascar, opposite Antongil Bay; we steered thither and got there, and sailed towards the west point of the island, and in eight fathoms of water we could see the bottom as clear as day. After coasting some distance, we anchored* in 12 or 13 fathoms, with a good bottom.

"The inhabitants came off to us in small boats made from the hollow trunk of a tree. They brought apples, citrons, rice, and fowls, and they gave us to understand that they only brought these things to show us, and that on shore they had a great abundance. They also made us understand that they had cows, sheep, calves, fowls, and other provisions, and that by a universal language, for they imitated the cries of all these animals in place of naming them. We were greatly struck with admiration of the people, and gave them some wine to drink in a silver bowl; they had no sense enough to put it to their lips, but put their chins within the bowl and lapped like beasts.

"These people go altogether naked, excepting a small piece of cloth about their loins. They are of an olive tint, verging on black. We went every day on shore and trafficked with them, giving bells, spoons, knives, and coloured glass beads for calves, sheep, rice, and milk. They brought the milk to sell in leaves, enveloped one within another like those of a cabbage. We made an opening by cutting these leaves, and thus drew out the milk. At last we were obliged to ascend a mile or two higher up and anchor in another place. We there found but few apples, but there were water-melons and some pigs. It was then arranged that I should take the boat over to Madagascar, with some merchandise, to see if I could purchase some apples and citrons; and I ascended a river for a mile and a half, and would have gone higher, but the trees were so interlaced on either side, and the channel so narrow, that we were obliged to return, without finding either people or any sort of fruit. We slept one night on shore, and after having been away on this business for three days, we returned safely to our ship.

"We crossed over the next day to the islet, near which our ship lay, and brought back some citrons, apples, milk, rice, and bananas. By this time our crews were in as good health as when we started from Holland. Every time we went on shore we took with us one of our men who played

* Probably at Porte de Ste. Marie, inside Quail or Madame Island, the present port.

on the fiddle; the novelty of this music attracted the islanders; they crowded round him, danced, and marked the time by making a noise with their fingers.

"It did not appear to us that these people had any knowledge of God, nor did they offer up any worship. We remarked only before their houses the heads of oxen fixed on the ends of certain poles, before which they prostrated themselves to the earth and seemed to make prayers. They appeared utter savages and without religion. We lived there nine days and, our people being in perfect health, we set sail for the Straits of Sunda."

Then follows the account of the burning and blowing up of the ship, and the tragic end of the *New Hoorn*, with the adventures of the survivors.

In February, 1624, the term of engagement of Master Bontekoe terminated, and he shipped on board the *Good Hope* for passage from the Pescador Islands to Batavia, where he was appointed master of a ship returning to Europe, named the *Holland*, in which ship he encountered a hurricane on the 16th, 17th, and 18th of March, in 19° 22' S. Lat., after which it was determined to run for the Bay of St. Lucia in Madagascar to refit.

"On the thirtieth we were in view of it (Madagascar) and sailed along the coast. We saw several fires alight, and were, we calculated, about eight or nine miles from the Bay of St. Lucia on the east coast; and we resolved to keep near the land on account of the bad state of our ship. At length we cast anchor in 25 fathoms of water. The long-boat was meantime ordered to try and find the bay. I went in the boat and found this bay, nine or ten miles from where the ship was anchored. I took soundings and found a suitable berth for our vessel. I returned on board, where I arrived the following day and reported my proceedings. We weighed anchor and arrived under sail in the bay, greatly to our joy, and we offered up thanks to God for the mercy which He had granted us.

"The rumour spread all over the country that we had arrived at this place, and, on hearing it, the inhabitants came from far off with their cattle; they put up their tents close to us and brought us apples, citrons, and milk, which they boiled before bringing to us, as in this country it turns very quickly. We bartered with them for their cattle, and their fishermen brought us fish to sell and exchange. The people seemed very friendly disposed towards our nation. They gave us to understand that they had enemies in the country, and that if we were willing to aid them to make war, they would grant for our service whatever we desired.

"We bought also from them wax and honey, of which they had a quantity. They told us that their King spoke Spanish and that he lived at one day's journey from there. We sent two of our sailors to see him, and the King received them well. They gave him our message and requested to purchase rice. He told them that this year they had been afflicted by locusts, which had eaten all their rice, which I can easily believe, for when on shore I found such a quantity that they flew about my face and almost stopped my breath. These insects have wings and, on reaching the ground, hop like other grasshoppers. The inhabitants take them, tear off their wings, and eat them after roasting. We tried

to do the same thing, but our taste did not agree with theirs. The King came with our two sailors as far as our quarters. He made me a present of four oxen. I gave him in recompense two muskets. He said that he could not furnish us with rice. After we had been there eleven days, our commandant died. We buried him in an island which is at the mouth of the bay, quite covered with trees.

"Our musketeers fired a salute three times over his grave, and the ship^{scu} fired three guns. This ceremony being finished, we set to work at our ship, our folk not making such diligence as our need demanded; and as I knew better than anybody, I urged them every day. 'Comrades,' said I, 'do your best to get the vessel ready for sea as soon as possible. Lose no time, since we have only eight months' provisions; otherwise we shall be obliged to return to Batavia.' I knew well that they had no desire to return there, but at last it was necessary to use harder words and even blows. There yet remained a great deal to be done, and at this time it seemed to me that I was like Scipio Africanus, who, as I learned, used to say he was never more occupied than when he had nothing to do, and never less alone than when alone; for all the night was not too long to think over in what manner I should employ my sailors the following day, without giving them subjects of complaint.

"I encouraged them strongly to work with all their might until the twenty-second of April, by which date we found ourselves ready to proceed on our voyage. We filled our casks with water, and our crew had as great a quantity of apples and citrons as they could stow in their boxes. The savages of this country are mostly black; a few have long hair, others have frizzly locks like sheep's wool. The women tie up their hair in little knots greased with oil, which makes them shine in the sun. The majority of the men use the same fashion, and wear nothing but a cloth around their loins, some few indeed go altogether naked.

"The twenty-third of April [1624] we resolved to depart the following morning with the land breeze; but at night two of our sailors, who were on watch, went off to the shore in the dingy and hid among the negroes, so that we could not find them. This astonished us greatly, for they had assisted in putting our ship in readiness to continue the voyage, and now fled, on the eve of our departure, to live among an altogether barbarous people, who had no knowledge of God or of His commandments. We imagined that they had formed an intimacy with women of the country and had engaged to stay there, for women are powerful instruments to seduce men.

"We saw there some small infants who were almost white, with fair hair; we believed them to be the issue of some Dutchmen who had before us occupied this bay.... This desertion of our two sailors retarded our departure for two days, which we employed in searching for them in the country. We found them at last, but they again escaped, so that we were obliged to leave them behind. On the twenty-fifth of April we set sail with the land breeze and ran to the south."

On the 14th June the *Holland* touched at St. Helena, and they at length got back to Holland in November.

Extracted by S. PASFIELD OLIVER, CAPT. LATE R.A.

THE ARAB ELEMENT IN SOUTH-EAST MADAGASCAR:

*AS SEEN IN THE CUSTOMS AND TRADITIONS OF THE TAIMORO
TRIBE.*

WHILE all writers on the ethnology of Madagascar are fairly in accord as to the origin of the principal tribes, the Hóva and Bétsiléó, the proximity of Africa has always caused an element of uncertainty to creep into the mind regarding the source from which the many darker-skinned races have sprung. Many contend that the coast tribes, the Sàkaláva on the one coast, and the Bétsimisàraka on the other, have a decidedly African cast of feature and formation of cranium; and this has apparently been borne out by measurements and investigations made by Dr. Hildebrandt in the somewhat limited tract of country through which he travelled. But against this has to be put the fact, that the more perfectly the island is explored, the more convinced are those who are in a position to give an opinion of any value, that the language of the various tribes is one and the same, and that the many varieties in pronunciation and syntax are simply dialectic, and do not represent radically different languages. That an African element is present in the island no one can deny, but it has never been strong enough to materially influence the social distinctions; nor has there yet been discovered any tribe which is so completely African, either in language or physique, as to leave no doubt in the minds of those who have studied them closely as to this theory of their western origin.

But, strange to say, while the African element has been merged completely into the other tribes, because of the small amount of immigration, and this mostly of slaves, and so wanting the power to make their individuality felt as a separate and distinct community, the Arab is a powerful and unique factor in Malagasy sociology. His influence has been felt in the language strongly enough to dictate the names for the days of the week, the months, and, where such exist, the names of the years, not to mention other words unmistakeably Arabic in origin. He has been, and still is in a more limited degree, the importer of slave labour into the island, his form of boat being the most common in such places as are inhabited by those bold and daring enough to venture out to sea. He has been met with in many outlying and unfrequented spots settled down as a trader, thriving upon the dulness and inertness of the coast tribes, and flourishing by his superior knowledge and acuteness, not to mention his superabundant cupidity. And in the district watered by the River Mâtítàna, in the south-east, he has maintained an independence of, and isolation from, other tribes, while he has developed into a large and powerful community, with traditions, laws, and sympathies distinctly Arabic.

This tribe, called the Taimòro,* from their first settlement *amòrona*

* Various spelt Taimoro, Teimoro, Ntemoro, Antemoro, Antaimoro, and Taimorona, the most common pronunciation being as in the first and the last forms. Literally, the words mean, "There by the side," or, "On the banks."

('on the banks of') the *Matitánana*, has a history, with customs and traditions that make them peculiarly interesting to the foreigner; and their influence, from causes that will be explained later on, is widespread and powerful among the neighbouring tribes.

The Taimoro at the present day occupy that political division of the country which is under the Governor of *Vóhipéno*, extending from *An-dákana* in the south, to *Tapólo* in the north. It is bounded on the west by the River *Rianánana* (a tributary of the *Matitanana*), and stretches as far as *Békàtra* on the north-west, beyond which is the country of the *Tanàla* and *Tambódihárana*, as the various sub-tribes occupying the mountainous slopes of the table-land are called by the coast people. Portions of other tribes are to be found within this boundary, but they are the descendants of those who have come as visitors, in the first instance, or of families that have been driven into this country, as a refuge from enemies, in some of the intertribal wars. In this way the small communities of *Taifàsy*, *Záfisòro*, and *Bètsimisàraka* within the province of the Taimoro, are to be accounted for. These have in the course of years or generations acquired ricefields and plantations, grazing lands and villages, entirely distinct and independent of the Taimoro, and acknowledging no fealty to the Taimoro chiefs.

The Taimoro proper are divided into several sub-tribes or sections, each being apparently the descendants of the individual leaders of the original immigration, and of their slaves or dependents; the former section being called the *Mpànombily* or *Tómpoménakely*, and the latter the *Ménakely* or common people.

The *Mpanombily*, the chiefs or lords of the manor and descendants of the old kings, are subdivided into:—

(a) *Anakàra*. (b) *Taiòny* or *Antsiòny*. (c) *Talaotra* or *Antalaotra* (this, which is the name applied by the Malagasy generally to the Arabs proper, is a name assumed by all the *Tompomenakely* occasionally). (d) *Taisámbo*. (e) *Taitsimaito*. (f) *Taimahàzo*.

The *Menakely* are divided into castes or sub-tribes as follows:—

(a) *Onjatsy*; these are said to have originally come from the north, when the tribe settled in the neighbourhood of *Matitanana*. On their arrival, they had the office of *Mpanombily*, but afterwards the dignity passed from them, because, when called upon to officiate, that is, to kill the cattle or fowls, etc., for the people, they put the tribe to all kinds of inconvenience, and the animals sometimes to unnecessary hardship or torture, by going about their own private work before attending to the duties of their office. (b) *Taimainty*; the fishermen, those who fished with nets. (c) *Tàimanàja* or *Antrémanàja*; these are said by some to have been the first arrivals in *Matitanana*; they are the potters. (d) *Taibé* or *Anteibé*. (e) *Taimasry*. (f) *Taivohitrindry*. (g) *Zànatsèrà-nana*; people conquered by the *Zafisoro*, and given land in this district. (h) *Tàimanasàra*. (i) *Taivàto*; these were originally from the south, where there is still a large tribe of this name; they are doubtless not pure Taimoro, but one of the immigrant tribes. (j) *Taitsimatra*. (k) *Tambàhivè*. (l) *Taimànanáno*. (m) *Tailàvakàra*.

These names represent simply the largest divisions of the tribe, many of them being derived from the districts they inhabit, or else the districts have received their titles from the name of these sub-tribes; the former

I think the most probable. Of them all, the Talaotra appear not only to be the most interesting, but also to have an authority or influence arising from the superstitious reverence for their ancestry accorded to them by the other tribes.

Very little and but uncertain tradition exists among most of the different tribes in Madagascar as to their origin; and even the direction from which their ancestors came is so uncertain that some of the tribes say their forefathers came from the east, and some that they came from the west; and so contradictory are the traditions on this subject, that no reliance can be placed on any account. But all this is otherwise with the Taimoro, where, although much of their so-called history bears the impress of a folk-lore tale, yet there is no uncertainty in the minds of the people as to their origin; and the accounts I have heard in different sections of the tribe correspond in a remarkable degree. All agree in certain particulars: that their ancestors emigrated from Arabia; that they inhabited a district near Mecca; and that, living in troublous times, they were driven out of their country by enemies. The usually accepted account of this emigration, which, as I have said, savours strongly of a folk-lore tale, is as follows:—

One day a girl had left the town to fetch water and, while at the well, was surprised and captured by the enemy's scouts, who took her as spoil. (Hereditary enemies are indicated here, not that any war had been declared, or any quarrel existed.) She asked them the object of their visit, and what they were in search of, to which they replied:—

"We have come with the intention of making war on this town, so tell us where the road is by which we can enter the town and overcome its defenders."

"No!" she said, "I will not tell you. You may kill me or torture me, but I will not show you now."

They threatened her and cajoled her, but all to no purpose. At last she said:

"If you go up to fight against this town with sword or spear, you will not overcome it; but return whence you came, and I will there tell you how you may become masters of the place."

So they returned and carried this captive maid with them. And when called upon, this was her counsel:—

"Collect together a great number of dogs, take them with you, surround the town, and urge on the dogs to the walls, and you will find that it will be easy to take the town without any fighting."

The people were divided for a long time as to what to do, whether to act according to the girl's advice, or not. And when they decided to act as she had said, a difference arose as to the disposal of the maid. Some were for killing her as an incumbrance, others were for sparing her; but at last they agreed to let her live. They caught the dogs, took them with them, surrounded the walls, and urged on the dogs. The inhabitants were so frightened at the unwonted noise and curious on-rush, that they lost their wits. Some threw themselves into the sea; some got into canoes and made off; while the remainder fell panic-stricken into the hands of the enemy. Those who escaped in the canoes were the ancestors of the Talaotra, who made their way to the Matitanana. It is

because of this incident, or supposed incident, that the dog is a tabooed animal with the Talaotra.*

The sub-tribes represented by those in the canoe were the Anakara, Taiony, Taitsimaito, and Taivândrika. The king who was at the head of the expedition was Andriamàrohàla. But it ought to be mentioned that the Taimoro use the word "king" in a very broad sense, and in the use of the name make no distinction between an hereditary king, an elected tribal chief, or a leader or commander chosen for a single expedition. I may mention, by way of illustrating the broad signification of this word, an incident that came under my notice a short time ago. In the course of an itinerating journey, I met a small company of our school children enjoying a holiday at Nòsikély, a village some hours' journey from their home. They had made up a party for a few days, and had taken a house for themselves; and when I asked them who had accompanied them to take care of them and see to their food, they told me that before starting they had chosen one of their number, the biggest boy, about 13 years of age, as "king," and they did as he commanded them, and he was responsible to their parents for their well-being. There are very few *children* in Madagascar out of their mothers' arms.

To return to the fugitives in the canoes. After they had started, it is said that there were so many, that they were afraid the canoes would be swamped. But they struggled on, hoping to reach safety; but at last, owing to the weather and darkness, fear took possession of them; a hasty united council was held, and a suggestion was made that all the children should be thrown overboard. A good deal of excitement seems to have arisen on this suggestion; but eventually they agreed to throw away the children, sacrificing them to the general good. This was, on the part of some, not made in good faith, for although the Taivandrika threw overboard their children, all the others simply made a feint of doing so, or dropped stones into the water, so that when they came to land, it was found that although the children of the Taivandrika were all lost, the children of the others were still there. This account is said to be the origin of the proverbial saying among those in the Matitanana district: "Taivandrika crossing by canoe."

When the Taivandrika discovered how they had been imposed on, they were filled with wrath, and cursed and reviled those who had come with them; and the curse or imprecation they are said to have used is employed still by their descendants when vexed with any of the other tribes. Their curses, however, seem to have rebounded on their own heads, for the Taivandrika are a scattered and wandering people, having no settled territory, and spread over the country of the other tribes. They are also very few in number.

These fugitives in the canoes are said to have landed at a part of the coast now occupied by Vangaindràno, in the south; but after making acquaintance with the country and the inhabitants, they

* In connection with this subject, it may be mentioned that even now, if a dog rubs against one of these people, it renders that person unclean. He must go immediately to the river and bathe, and whatever clothes he is wearing next the skin are thrown away, or given to the slaves. If by chance a dog jumps over or passes over the rice, when it is spread in the sun to dry previously to being husked, it is at once thrown away, or given to the slaves. But intercourse with the Hova and other tribes is gradually lessening the hold which these and other customs and *fady* have upon the Taimoro.

said: "We are not able to remain here, for although the country is pleasant and fruitful, yet the people love war; their spears are in constant use, and we shall find no secure place for our wives and children. Let us leave this part at once." Hence they again embarked and, making their way along the coast northward, eventually landed at Matitanana.

As there were many more men in the expedition than women, they asked for wives from the Onjatsy, who live a short distance up the Matitanana, on the south bank. But, doubtless through fear, the Onjatsy not only would not agree, but in order to frighten them from the district, told them that, among other dangers that awaited them, there was a monster which lived in the river Matitanana, a man-eating creature, that would eventually destroy them all. In no way disconcerted, the Talaoatra, the new-comers, got a bullock and poisoned it—filling it with poison, the account says—and then threw it into the river. The creature ate the carcase and died, the new-comers gaining thereby security for themselves and a certain respect from the Onjatsy, who admired their cleverness, and acknowledged their superior skill and learning, as shown by their possession of some powerful drug or charm unknown to themselves.

Irotra, a spot about three miles from the mouth of the Matitanana, on the north bank of the river, was the first settlement of these people; and there councils were held with a view to the future disposal of the families. It was agreed that the king should live at a place now occupied by the town of Ivato, in a central position in relation to the other families; the Anakara were to pass to the west, and the Taitsimaito to remain on the east. "For," said they, "the Anakara are so much given to cursing and quarrelling, that we cannot have them on the east of the king; so let them go away to the west, to be easily seen, being between us and the sun." Notwithstanding this division, Andriamarohala never lived at Ivato, but made his home at Ambôabé, when he and his family removed from Irotra. There he lived and died, and is buried in the wood, a little to the south of Mr. Desjardin's trading-post.

Such is the generally accepted account of the immigration of the Talaoatra. It doubtless contains a modicum of truth, but around a central fact is woven such a mass of improbability, that its value as authentic history is very much lessened. Beside which, it only accounts for one or two branches of the tribe; and the narrative admits the presence of the Onjatsy, from whom wives were sought for by the immigrants; and the Onjatsy are not only equally allied with the Talaoatra, Anakara, and Taitsimaito to the Arabs, but have the honour of being the custodians of one of the only two remaining original copies of their sacred book. Hence it is difficult to say whether the immigration spoken of is really the original immigration of the Arab race, or only that of a part, a former company having landed and settled in the same part of the country. Onjatsy is also the name of a town on the south bank of the Matitanana, about two miles from the mouth of the river.

The people at any rate showed a considerable amount of acuteness in their choice of territory, for the district of Matitanana must be one of the richest, from an agricultural point of view, in this remarkably fertile island. Well watered by the Matitanana river, the many tributaries of

which flow through an extensive and gently undulating country containing about 600 square miles, and also by the Mānanāno river, to the north, not to mention the many small streams which flow into the sea or the lagoons along the coast, there is every facility for rice-growing, one of the most extensive and lucrative employments of the people. Very little of the engineering skill exhibited by the Betsileo in the formation of their rice plantations is required here. The low plains are easily flooded with water, and nothing more is required than little banks to mark the boundaries of each man's possession, and to assist in confining the water necessary for the growth of the rice-plant. The soil is alluvial, and is constantly added to and enriched by the frequent overflowings of the rivers. Even the higher lands are so fertile that a lazy style of cultivation has become the custom. Little if any attempt at manuring is adopted; the ground is simply weeded, the weeds burnt, and without any further digging, the beans or earth-nuts or manioc are planted and left until ripe enough to be gathered. The rice-fields are of two kinds: firstly, those planted in June and July, which resemble the fields in the interior of the island. In the preparation of these, the cattle are made to trample the clods of earth which have been roughly turned over by a spade, until, by the united action of their hoofs and the water retained between the little banks already referred to, a soft smooth mud has been produced. Into this the rice is thrown, and when about six or seven inches high, it is thinned out. All the young plants removed in the course of this process are transplanted into other fields similarly prepared. In these respects, the plan adopted by the Taimoro, and that by the people in the interior, differ. Among the Hova and Betsileo, the rice is sown as thickly as possible in a small patch, and the whole is transplanted, when of the requisite size. In the Matitanana district it is sown thinly in large plots, and only the superabundance is taken up, the remainder being left *in situ* to ripen.

The other kind of rice-field is made by first burning down a tract of bush or forest; and then, with a pointed stick, holes are made in the cleared ground, and one or two grains of rice are dropped in each hole. This sowing takes place in January or February, and produces rice having a large and beautifully white grain, but softer and much less nourishing than that grown under water; and although fetching a better price in the market for export, it is less esteemed as a food supply by the natives than the redder grained rice of the marshes.

The productiveness of the soil, assisted by the greater heat and heavier rainfall, is seen in the fact that the manioc, which takes a couple of years at least to come to perfection in Imèrina, is ripe in Matitanana three months after the slips have been planted.

A plentiful supply of fruit of good quality is produced in the district, and many introduced fruits flourish. Beside the bananas, mangoes, pine-apples, and guavas that grow in abundance along the road-sides, grapes, oranges, lemons, and limes, large and luscious, are to be found in several parts of the province, and cocoa-nuts thrive on the coast. The *rofia* palm in the forests, and the *harèfo* rush in the swamps, supply the materials for dress and sleeping mats, while the traveller's-trees, the bamboo, and the pandanus furnish all that is necessary for their unsubstantial houses, and for their plates and spoons.

The rivers abound in fish, and an additional large supply is obtained by the people from the sea, which they navigate in boats of a peculiar construction, which effectually surmount the difficulties of the surf and high rollers, although to an English eye they appear most flimsy and unsafe. The keel is made very deep and long, ending in a high and peculiarly shaped prow, which extends some distance beyond the boat itself. No ribs are used, but the planks, after being bent into the requisite shape by the heat of the sun, are tied in position with withes or creepers. A few thwarts are introduced, also tied into their places; a step is made for a mast; a square sail is formed of plaited rushes or strips of pandanus leaves; and this crazy craft is rendered fit for sea by having its large seams caulked with fibre from the bark of one of the forest trees. The boat, which is about 14 feet long, carries a crew of eight: six men paddle, one steers, and one, whose office is no sinecure, bales out. When a sufficient offing is obtained, the paddlers let down their lines, and the fish caught, generally a fairly good haul, is divided equally among the eight, as the services of the steersman and baler-out cannot be dispensed with to allow of their fishing. The one must keep the head of the craft to the seas, and unless the other continues his employment, a catastrophe would result.

On the extensive prairie land large herds of cattle are kept. These are not, on the average, so good or so large as those in the interior, probably owing to the less nourishing nature of the grass, which is ranker on the coast; and cattle from the interior invariably lose flesh after a short stay on these plains. Sheep and goats do not thrive in the Matitanana district, and pigs are *fady* (tabooed). The Taimoro will neither keep pigs nor eat pork, unlike in one respect the Taifasy and other south-east tribes, who, though making it *fady* to keep pigs, do not object to buying pork in the market and eating it, provided some one else has kept the pig, and killed and prepared it for sale.

Although the Taimoro do not reach the great forest to the west of their territory, there are several by no means insignificant forest tracts within the limits of their district, containing many valuable woods: rose-wood, ebony, a species of teak (*himsy*), and other hard building timber, besides the *nato*, a red dye-wood, and the *rofia* palm; but no india-rubber is now found in the forests of the Matitanana.

There are indications that iron, and perhaps other metals, are to be found in this part of the island, but none are worked. All the iron used by these people is brought already smelted and, generally speaking, manufactured into spades, knives, hatchets, etc., from Betsileo, where a great number of the people make a good living by working iron for the Taimoro market. The country is in places covered with volcanic rock, large quantities of lava protruding from the surface, or lying in boulder-like masses on the hill-sides. No gold has been found, although once or twice I have heard rumours of its existence in some of the rivers; but these have turned out to be incorrect.

Trading-posts have for many years been in existence on this coast; but, like the greater part of the coast-line on the east of Madagascar, it is wanting in harbours. The rivers are all entirely or partially blocked up with sand, and vessels are obliged to anchor at a considerable distance from land and work their cargo by decked lighters, which brine

the goods through the surf to the beach, where they are landed by hand and carried up to the traders' warehouses. The river mouth of the Matitanana is fairly wide and deep, and large boats could, it is believed, be worked through into the quiet water of the river, which is here like a large lake; but it is *fady* for any boat to enter. Foreigners would, if they dared, disregard this *fady*, only that as they are dependent upon the natives here for labour, the latter would no doubt take no care of the boat in entering the passage; and then, if any accident occurred, they would simply disclaim all responsibility. The breaking of the *fady* would, in their minds, account for any mishap, and be a just retribution upon the venturesome foreigner in not regarding with reverence, equal to their own, the taboo of the tribe.

The climate of the Taimoro province is hot and damp, the average monthly maximum temperature in the shade of a Stevensen screen being 87° , with an absolute maximum of 102° , and a direct sun-light register of 164° ; the average monthly minimum of the temperature at night for the year being 65° . There can scarcely be said to be a rainy and dry season, except in the sense that heavy thunderstorms are confined to that part of the year corresponding with the rainy season in the interior, from November to April, and that during those months the heaviest rainfall is registered. In February and March the greatest amount of rainfall is registered, amounting in some years from 20 to 24 inches. The annual total rainfall gives over 100 inches. This, with a large preponderance of north-easterly winds, which are warm, and blow along the coast over the lagoons and swamps, render the district very unhealthy both for foreigners and for natives who come from other parts of the country. The flat nature of the country helps the evil, as large swamps, beside the well-known lagoons, exist all along the coast, and in many parts entirely surround the towns. These make fertile rice-plantations, but are hotbeds for the rapid generation of malarial fever, which often assumes a very virulent form on this part of the coast.

Notwithstanding this, the native population is large, indeed it may be said to be dense for Madagascar. I know of no other spot, outside the plain immediately surrounding Antanànarívo, where there is a larger population than in the Taimoro valleys. The villages are not only near together, but are above the average in number of houses; while the families of the Taimoro are larger than those of the majority of Malagasy. This doubtless arises from the higher state of morality existing among these people even before Christianity was brought to them. All travellers with whom I have had the opportunity of speaking are forcibly impressed with the way the children seem to swarm in the Taimoro villages. The people have intermarried very little with other tribes, and each branch of the tribe has kept itself, to a very great extent, distinct. This, together with the clannish, almost superstitious, reverence for their ancestors and their writings, has kept from the Taimoro many of those evils which have seriously affected the growth of population in other tribes.

The writings just referred to are unique in Madagascar. Called by the people the *Sôra-bè* (or 'Great writings'), they constitute, as far as we know, the only books used in the island until Christianity was introduced by the English missionaries. These writings are said to have been

brought from Mecca by their ancestors (in the canoe already referred to), who carefully preserved them and handed them down to their children, with the power to read them. This accomplishment is now, whatever it may have been in the early settlement of these people in Madagascar, simply instruction in the Arabic characters, and the mode of forming the characters into words. None of them have now the power of accurately translating or understanding what they read, although many of the passages are committed to memory, and are used on certain occasions as incantations or prayers to God and Mohammed. I have known Taimoro men travel several days' journey, upon hearing of the location of an Arab trader, so as to secure a translation of a passage in some of their books, in order to add to their own importance by an exhibition to their neighbours of their superior knowledge.

A superstitious sacredness is attached to the writing itself, and passages from it are copied on to small pieces of native paper and worn as amulets round the neck. Nearly every child in the tribe has one of these small charms attached to a string round its neck, and carefully preserved from wet or injury by being wrapped in bark and thickly plastered with wax, till it looks something like the long agate beads affected so much by the women of the coast tribes.

The one great desire of all Malagasy women is to become mothers. If any woman of the Taimoro fears that she is likely to be an exception to the general rule—for the majority have large families—she has recourse to one of the scribes and diviners, or priests, as they call them. A portion of the sacred writing is copied upon a piece of white paper and carefully wrapped in *rofia* fibre. This is held over the smoke of some burning gum used as incense, while a certain formula is recited by the wise men, which takes the form of a blessing and assurance of the consummation desired, rather than of a prayer; after this the document and its covering are enveloped in wax and ornamented with beads; a string is attached, and it is worn like a bead. "Sometimes," naively said my informant, "the woman has her wish, and she becomes a mother, and sometimes she does not." In either case, the money or its equivalent has been paid to the diviner, and he at any rate is perfectly satisfied.

In the same fashion almost all the circumstances of life are made to be in some way or other dependent upon the *Sora-be*; and a spurious but most effective sacredness is given to them by the *fady* or taboo which is invariably connected with them. No original copy is ever parted with, though cunning, craft, and avarice have led the keepers to bamboozle some foreigners with ancient-looking copies. It is only with difficulty that a sight of the original books (only two, some say three, are in existence) can be obtained; and they are smoke-dried, dirty, torn, and rat-eaten to such an extent as to render them almost useless. There are, however, some very good copies, so it is said, over which great care has been taken to secure accuracy, and almost fabulous amounts are demanded for single copies, which are even then only secured by favour.

They are written upon large sheets of a kind of vegetable parchment made from the bark of one of the forest trees. The bark is stripped from the tree, and after being denuded of the rough outer bark, it is steeped in water until saturated and softened. It is then beaten with

mallets or flattened pieces of wood until it is reduced to the proper thickness. It is then firmly pegged on a board and exposed to the sun, which not only dries the bark, but bleaches it. In order to make it ready for the pen, it is washed with a fairly thick size, made of manioc root reduced to powder and boiled in water. After this has dried, the surface of the bark is tolerably smooth, and can be written upon with their pens or a quill with comparative facility. These sheets of bark are then cut into convenient sizes (about quarto) and stitched together into book form, but not rolled.

The pen used is made from a piece of bamboo, treated very much as we do quills, and cut in the same fashion. Quills, however, seem never to have been used by these people. The ink is a gummy solution of lamp-black and, judging by some of the specimens I have seen, is very durable, as well as of a brilliant blackness.

The utmost care seems to have been taken both with the instruction of the male children in the art of reading and writing the characters, and in the endeavour to secure accurate transcripts of the original books. The scholars are required to rigorously observe the various *fady*, on pain of expulsion from their families and tribe. They are required to abstain from certain foods, such as eels, certain sea fish, pork, etc., and an absolute moral purity is enjoined.

In case of war, or fire, or hurricane, or other event likely to imperil the safety of the *Sora-be*, the keepers answer for their preservation with their lives; if they are able to escape the calamity, whatever it may be, they are considered as able to save the sacred books. These must come before considerations of money, property, or family; and hence, through all the disturbances and unrest of a semi-savage state of society, the books have been preserved.

The books, besides being called the *Sora-be*, are also called by the educated (the readers of them), the *Karàna*, evidently a corruption of 'Koran.' But in the course of generations the actual meaning of the word—as applied to one book—has been to a great extent lost, and is used to represent the various stages or standards through which the students pass. For instance: the normal character or sign of the consonants is called the *Karana vòalòhany*, i.e. the first Karana; the pointing of these consonants with some of the simplest vowels is called the second Karana; while those who are able to read any of the books are said to have mastered the third Karana.

I have in my possession an old and reputedly authentic copy of a part of one of the original books. It seems to contain, among other things, a treatise on astrology; but I have not had time to attempt to secure a translation. If I find it contains anything of interest when translated, I will forward a copy for a future number of the ANNUAL.

The possession of these books, together with the natural acuteness and exclusiveness of the Taimoro, has secured for them a certain kind of reverence from other tribes, which they have not been slow to turn to their own profit. It is said that the vast majority of the *òdy* (charms) and idols used in the country came from the Taimoro. Even the noted *Kèlimalàza*, one of the Hova idols destroyed by the late Queen in 1869, came originally from this part of the country, having been captured in one of the wars and taken to Imerina as legitimate spoil. At the present

day men travel about the country with reputed *ody*, and secure a good living through the gullibility of the villagers. The mode of operating may be varied to suit different cases, but here is one method which I can vouch for. A Taimoro, with a design of this sort upon a certain village, goes there disguised as a traveller of some other tribe, and enters, as all travellers are welcome to do, one of the houses he finds occupied, for his mid-day meal. In the course of conversation with his host, whom he can easily induce to believe that he has arrived from a place far from the Matitanana, he draws from him a few leading particulars relating to the past life of the owner of a house he indicates. Then having finished his meal, he resumes his journey. But, after getting a sufficient distance, he washes his face, which has been stained, changes his dress, putting on the peculiar long dressing-gown style of robe worn by the Talaotra, and returns to the village, making no secret of his profession, and makes his way to the house indicated to his host of the morning. He takes care that there is a look of comfort and prosperity about the house and owner. He asks and readily obtains quarters for the night, as travellers are always welcome for the sake of their news, which is retailed round the evening fire. The Taimoro takes care to make it believed that he has never been in that part of the country before, and has seen no one from the district. Then, when the time is ripe, he tells the man all he knows about him, in a careless way:—"Let's see, you lost your father two years ago in the rice-planting time; he was gored by a bull at such and such a place," and so on, till the man, in wonder, asks how he knows all that. It is of course put down to divination, and a good price is secured for the *ody*, which the rascal makes him believe will be just the thing for his household. The same spreads with morning light, even his host of the previous mid-day is astounded by some pieces of information which he forgets he told the traveller of the previous day; and the end of it is that the cunning fellow leaves, driving before him several cattle, and with money in his loin-cloth in place of the worthless dirty bits of wood he leaves behind him.

Many of the customs of the Taimoro differentiate them from all the other tribes in Madagascar: the burial of the dead, the yearly feast, marriage customs, their fast-days, and offering of first-fruits, etc.; but it is impossible in one article to speak of them all. Enough has now been written to show that these Taimoro, besides being a numerous tribe, are a very interesting people, not merely from the missionary's point of view, but from the scientist's also. If of sufficient interest, and the editors can allow a little space in the next ANNUAL, some of the above points may be amplified.

GEORGE A. SHAW.



THE EPIDEMIC OF INFLUENZA OF 1893.

IT may be well to put on record a few notes regarding the very severe epidemic of Influenza that has recently swept over the island of Madagascar. The disease seems to have broken out first on the east coast, especially at Tamatave, the principal seaport, about the beginning of July. Both Europeans and Malagasy suffered alike, and the mortality among the natives was great. It would almost seem as if Tamatave was the starting-point, from whence the disease spread westwards. We in the Capital heard of its steady, though not very rapid, progress up country, as the epidemic reached one village after another. The bearers of goods suffered terribly, and in some parts so great was the mortality, that the road was said to stink from the dead bodies lying about unburied.

During the first week of August we noticed a few suspicious cases amongst the out-patients at the dispensaries in Antananarivo, and very soon influenza became general throughout the whole city. Very few escaped its clutches, and the mortality was truly fearful, principally from causes which I will presently explain. From Antananarivo again, the disease spread to surrounding towns and villages in all directions, most rapidly perhaps towards the west. In some places the population was decimated, and in many, the people had not time to close their graves before other victims had succumbed and required burial. In September we heard of the influenza having reached Fianàrantsôa and Ambohimandroso, in the south, though the type, as far as I can hear, does not seem to have been so severe as in Imérina. In the same space of time it ravaged Vónizôngo, and swept away hundreds, probably thousands, on its progress to Mojangà. The reports from Mévatanàna were very distressing, but I am inclined to think that probably, in that direction, malarial fever seriously complicated the disease. During September the number of cases in Antananarivo steadily diminished, and the disease may be said to have died out here by the close of that month.

It is of course quite impossible in a country like this to obtain any statistics that would give an accurate idea of the mortality from influenza during the epidemic; but judging roughly, from the number of deaths around us, I should say that in the central province of Imérina not less than 10,000 perished from influenza and its consequences. There was scarcely a family whose members were not in mourning for the loss of one or more of their number.

There was nothing specially characteristic in the symptoms manifested. Among the most marked may be noticed chilliness, severe pains in the forehead, back of neck, and spine, extending to the limbs and chest, with general lassitude and prostration. The temperature was often very high, but transient. The respiratory system suffered severely in the great majority of cases, there being very considerable congestion of the throat and bronchial mucous membrane. Consequently, sore throats and coughs were almost universal. The great mortality was undoubtedly due to what might be termed "influenzic pneumonia," a type of catarrhal pneumonia almost characteristic of the disease. Epistaxis, coryza, and various digestive derangements were also common accompaniments.

The chief causes of the heavy mortality were the following :—

Firstly, ignorance and superstition on the part of the people. A great many would on no account approach a doctor for treatment, thinking and saying that this was a purely Malagasy disease which the doctors knew nothing of. Others said it formed part of the cargo of the S.S. *Conway Castle*, and that when that unfortunate vessel was wrecked on the coast, the disease escaped and found its way to the land ; while others again had more remarkable theories still. Feeling feverish and hot, the poor folks walked about in the cold wind, or lay down on the ground in the open ; others took to bathing in cold water, either at home, or in the streams and rivers, and by these and other foolish customs greatly heightened the severity of the disease, and produced fatal pulmonary complications. A common practice in some parts was to keep the wretched victim walking about, or standing, and not allowing him on any account to lie down or sleep, under the impression that if he did so, he would never awake again. In some outlying parts there was a general return to regular heathen practices ; sacred springs and *Vazimba* graves were resorted to, and numerous old customs were revived.

A second cause of the appalling mortality was the very inadequate clothing the Malagasy wear in cold weather. The majority wear a loin-cloth, a long shirt-like garment of calico, and a *lamba* of the same material ; *voila tout !* The cold winds and mists soon penetrate through these poor coverings, and should the wearer get influenza, it is hardly surprising that he should develop serious complications.

The third cause was undoubtedly the lack of doctors and suitable drugs. I know of no fatal case among patients who sought advice and treatment at the very commencement of the disease. The influenza readily yielded to the usual remedies, quinine, arsenic, salicylate of soda, antifebrin tonics, etc. ; and could the number of doctors have been multiplied a hundredfold, with medicine in proportion, there is no reason to suppose the epidemic would have been more fatal in Madagascar than it was in Europe last year, perhaps a great deal less so.

S. BACKWELL FENN.

P.S.—Since writing the above we have been visited with a slight return of the epidemic. This commenced about the middle of October, and continued for 3 or 4 weeks. The type, however, was very mild, with few or no complications ; and the nervous symptoms predominated. Cases of influenza have continued to occur sporadically well into the month of December.
S.B.F.



RECENT DISCOVERIES OF FOSSILS AT ANT SIRABÈ.

DURING my long residence of twenty-one years as a missionary at Antsirabè, in the Vakinankaratra district of Central Madagascar, I have at various times made discoveries of bones of recently extinct animals, recent, that is, in a geological sense, although probably of considerable antiquity, judging from an historical standpoint. As these 'finds' of mine possess, I feel sure, considerable interest for the naturalist and the geologist, I will here give a brief description of what has been discovered, merely premising that, as I make no pretension to scientific attainments, my account can only be of a simple and popular kind.

1.—*The Locality*.—On referring to a good map of Madagascar, the Norwegian mission station of Antsirabe will be found a little to the north of 20° S. Lat., and a little west of 45° E. Long. (reckoning from the meridian of Paris). This place is 5850 feet above the sea-level, and is therefore in one of the highest inhabited regions of the island, and about a thousand feet higher than the Capital. The district is full of extinct volcanic cones and craters, and basaltic lava is found in abundance in the neighbourhood. Hot springs are, it is now well known, found in many parts of Madagascar; and there are several near Antsirabe, which closely resemble, in their chemical constituents, the Vichy springs of France. Prof. Waage of Norway has made an analysis of our springs here, an account of which may be found in *ANNUAL* xv., 1891, p. 376.

To the presence of these mineral springs, with the lime and other elements they hold in solution, we owe the preservation of the bones of the various animals I have discovered. The name of Antsirabe is composed of three Malagasy words meaning "At-much-salt" (*sira*, salt, *bé*, much), and, in accordance with this name, the water contains bicarbonate of sodium, chlorides of potassium, magnesia, and sodium, and sulphates and carbonates of lime, and these substances have kept the bones in good condition; many indeed are perfectly preserved and quite fresh in appearance, while others are partially fossilized. Around the localities where the springs occur, the soil is saturated with a kind of salt, which appears on the surface in the dry season and gives the appearance of hoar-frost to the grass. This salt tastes like potash, and is much used by the Malagasy to give to their cattle. A rush (*vondrona*), from which salt, or rather potash (*sira-vondrona*), is obtained, also grows in the neighbourhood.

The mission station of Antsirabe is situated almost in the centre of the large plain of the same name. Not far to the west of the mission house (about 180 to 200 feet distance) there is a little valley running north and south, the surface of which is from 60 to 70 feet below the general level of the plain. In this valley, which varies from 120 to 250 yards broad, are several hot springs, over some of which rude bath-houses have been erected, which are much used both by Europeans and Malagasy. At about ten minutes' walk south of the mission house, I built in 1879, over one of the principal hot springs, a bath-house, with four chambers, two of them being for the exclusive use of the Queen and the Prime Minister, should they visit Antsirabe. We also built a small house over another spring, very near the first-named one, of cold water, but with valuable mineral constituents, and used for drinking by people suffering from rheumatic and other complaints.

Very near our bath-house the native Government procures its supplies of lime, and has a lime-kiln. It was when digging here for lime that the first bones were discovered, but these were rather small ones. A little higher up, and to the west of the mission station, the valley is covered with a layer of marshy soil, about 6 to 8 feet deep, consisting chiefly of volcanic ash and mud mixed with the products of the various springs. Under this softer material there is a stratum of limestone, through which the springs come to the surface. At a depth of 5 or 6 feet in this calcareous material, the bones occur in abundance, those of different animals being found mixed together indiscriminately. Within an area of about a hundred square feet, I discovered several skeletons of Hippopotami, as well as an abundance of bones of birds. Quite recently also, only a few yards to the west of the same spot, the same kind of remains have been found; and these comprise bones of animals of all ages, from those of apparently newly-born individuals to perfectly adult forms; and the same statement applies also to the bones of the birds.

2.—*Hippopotamus*.—This animal is now extinct in Madagascar, but it must have been plentiful here in recent geological times. The remains discovered show that it was smaller than the present large species common

in Southern and Equatorial Africa, probably from a half to two-thirds the size of *Hippopotamus amphibius*. It was in 1880, when excavating in the stratum of lime to the north of the Queen's bath-house, 6 feet below the surface, that I discovered the first remains of the Hippopotamus. At this spot, within the space of a few yards, I found six well-preserved skulls and several of the large bones. The finest specimens of these were sent in 1881 to the Museum at Christiania in Norway. The other examples I gave to Dr. Hildebrandt, a German naturalist, who was just then staying at Antsirabe for the benefit of the baths. Last year, and again this year, I have found several almost perfect skeletons in the northern part of the valley and west of the mission station. These were in excellent preservation, being found near some hot springs. The following are the sizes of the different bones:—

	centimèl.		cm.	cm.
Largest skulls .....length	47.0	Fibula.....circumf.	12.0	length 24.5
Between the eyes	16.0	Shoulder-blade.....	"	30.5
Round the skull, between eyes and ears	80.0	Upper part of fore-leg "	14.5	30.5
Hip-bone .....length	47.0	Cubit.....	15.5	28.5
	cm.	Ribs.....	"	55.0
Thigh-bone, circumf.	13.5	Dorsal vertebræ.....	diam.	7.0
	"			
	34.0			

3.—*Æpyornis maximus*.—It is well known that the medieval Arabian writers have many marvellous stories about an enormous bird, which they termed 'Roc' or 'Rukh'; and Marco Polo, the famous Venetian traveller, also speaks of this wonderful bird as being found in Madagascar, although he never really saw it. It has been thought by some that these stories take their rise either from native traditions of a large bird actually existing, or from the occasional finding of the enormous eggs of the *Æpyornis*. The first discovery of bones of this bird was made by the well-known French naturalist, M. Grandidier, who travelled extensively in Madagascar from 23 to 25 years ago, and has since then been engaged in preparing the most elaborate and costly work ever published upon this country. His discoveries of *Æpyornis* fossils were made on the south-west coast, in the neighbourhood of Môron-dava, but they only comprised some of the leg-bones and a specimen of the egg, now deposited in the National Museum at Paris.

The largest and by far the fullest discovery of remains of the great bird, however, have been made here at Antsirabe. The first bones were found on the 23rd November, 1892, in the valley already mentioned; and this year I have obtained many more, so that I have now the most complete skeleton yet known, although possibly a few of the smaller bones may still be wanting. I have also got a quantity of bones of some other species unknown to M. Grandidier. The most important of these 'finds,' and one which is quite new, is the discovery of the cranium, all the dorsal and cervical vertebræ, and the pelvis of the *Æpyornis*. As yet I have come across no perfect egg, but have obtained a quantity of fragments of the shell. I presume this may be accounted for by the supposition that the birds were killed suddenly, together with the other animals, by a volcanic eruption.

I now possess a perfect cranium, with the exception of the lower jaw and the beak; the latter I fear there is little chance of ever obtaining, as its horny substance would be more difficult to preserve uninjured. I have also found larger or smaller portions of many other skulls, exactly similar in shape to the perfect one, except that in two examples the forehead is somewhat flatter than it is in the majority of cases. Possibly this indicates another variety, or even a different species, of *Æpyornis*. Besides many bones which it is rather difficult to classify properly, I have a rather large one, which must, I think, be the breast-bone or *sternum*.

The following table shows the dimensions of the principal portions of the skeleton, and it should be noticed that the circumferences here given are taken at the smallest part of each bone:—

	cm.		cm.	cm.
Perfect skull, from root of beak to base,		Fibula	circumf. 15.0	length 60.0
at junction with vertebrae.....length	14.5	Metatarsus.....	" 11.0	" 23.0
do. between the orbits	6.5	Upper part of wing-bone ..	9.5	" 39.0
Another skull, do. do.	7.5	Tibia	"	31.0
Thigh-bone, circumf.	20.5			
	34.5			

The large pelvis bone and the last lumbar vertebrae form a rather sharp crest on the ridge of the back. Although the pelvis is a little damaged at each end, it still has a length of 95 cm., and measures, from one socket of the hip-joint to the other, 28.5 cm. The dorsal vertebrae are about as large as those of a horse or an ox, with large spinal processes. The vertebrae of the neck decrease in thickness as they approach the head. The lowest part of the metatarsus shows that the bird had three toes; and some of the toe-bones are, I believe, among those which I have collected. As no portion of the beak has yet been found, it is still a question as to what kind of food the *Æpyornis* subsisted upon; doubtless, however, it was very similar in habits, as it is in structure, to living Struthidæ, although differing from them in several particulars. The fragments of egg-shell found are 2 millimètres in thickness.

The late Mons. G. Muller, a French naturalist unhappily murdered a few months ago, whose principal object in visiting Madagascar was to obtain complete skeletons of the *Æpyornis*, stayed with me for a short time in the month of June; and to him I gave a somewhat damaged skull of the bird, as well as other bones, which, I believe, have already been sent to France. But since M. Muller's visit, I have, as above mentioned, added to my collection many other portions of the skeleton, including the perfect skull, whose dimensions have been given above.

4.—*Gigantic Tortoise*.—I have not yet obtained a complete skeleton of this animal, although I have found most of the bones, together with the scutellum and the breast-plate, the latter in several pieces; and I believe I have also got portions of the skull. All these are perfectly fossilized, and from their size show that this Tortoise must have been very large. The hip-bone is 26 cm. thick at the socket of the joint; the fibula is 29.5 cm. long and 10.5 cm. thick; while the scutellum is from 1.5 cm. to 4.5 cm. in thickness, and the breast-plate from 1.5 to 6.5 cm. in thickness.

5.—*Crocodile*.—Of this reptile, a skull, together with some bones and dermal scutes have been found, although the skull is somewhat damaged; it is only 27.5 cm. long, so that this species would seem to have been small, compared with the living species of Crocodile now found in Madagascar.

I may add here that, among the fossils above described, there are also the bones of several small birds; but whether these belong to still existing species, or are those of extinct forms, has still to be determined by those more versed in palæontology than myself.

6.—*Probable Period of the Extinction of the above Animals*.—As already mentioned, it seems likely that the immediate cause of the death of the animals now described was an eruption, or rather, successive eruptions, of now extinct volcanoes in the neighbourhood of Antsirabe; and several circumstances tend to prove that these animal remains are of considerable antiquity. It may be here noted that a little to the east of the spot where the Queen's bath-house has been built, is a mass of limestone about a hundred feet long and twenty feet high, which has been deposited by a hot spring, which still makes its way to the top of the rock and deposits fresh layers of lime; and it is evident that a very long period of time must have elapsed before this mass of limestone could have attained its present dimensions.

T.G. ROSAAS.

VARIETIES.

Old Coins found in the Ankaratra Mountains.—Under one of the old hill-top towns on the western slopes of the Ankaratra Mountains, near some old graves, a landslip occurred, and a small earthen pot, unlike those made in the country at the present time, was exposed. The finder broke the pot in handling it, and some twenty-nine old coins were found in it. Three were all that I could obtain of them, the others having been melted up to make ornaments; but they are said to be good specimens, in fact, the finder kept them for 'good luck' and parted with them most unwillingly. The shape of the pot, according to the description given, was something like an ancient vase, and it was covered with a small lid.

Both the town and graves belonged to the people who lived in that part of Imérina before the present tribe of Hova went to live there, and nothing is known about them. The name of the old village, however, has survived, and is a common name of a hill-town amongst the Sâkalâva, viz., Manéva. No doubt the coins have lain in the grave, from which they were broken away by the landslip, for a very long time. There were some remains of human bones in the *débris*, I believe. If any one can recognise them and determine their date, it might prove interesting; I should be glad to hear from them, and they might see the coins.

There is no doubt that the largest coin was square; holes have been rudely punched and drilled in it to wear in a necklace; the two smaller coins were hexagonal. They weigh respectively 25, 14, and 8 grammes. They are all silver, without alloy apparently, being soft; and although the impression is rude, like their shapes, yet they are not native work, but have been struck with a die. The shield and quarterings on the larger coins are the same; that on the smallest is different and not so well done; the cross and patterns on the obverse seem to be the same in all three.—E. O. MC. MAHON.

Depth of the Crater Lake Tritriva.—When I wrote my article on this lake in the ANNUAL of 1888, pp. 467–472, no accurate measurements had then been made of its depth. I have, however, been favoured with the following particulars by the Rev. Johannes Johnson, of the Norwegian Missionary Society. Mr. Johnson says: "In the ANNUAL of 1888 you wrote an article on 'The Volcanic Lake of Tritriva'; perhaps, therefore, it will interest you to hear that the depth of the water has been measured. Here is a rough diagram showing the places where soundings were made, S < 1 2 3 > N. At 1 it was found to be 328 feet deep, at 2 it was 443 feet, and at 3 it was 474 feet in depth. The natives expected it would prove to be much deeper than this." Thus it appears that although not, as popularly supposed, unfathomable, the depth of this remarkable sheet of water is still very considerable for its small area, and is quite sufficiently profound to have given rise to the many weird legends connected with it in the popular imagination.—J.S. (ED.)

The Great Inundation of January, as an Illustration of Changes in Physical Geography.—On the night of Saturday, Jan. 28th of this year, and during part of the following Sunday, the central province of Imérina was visited by an unusually heavy storm of wind and rain. This did immense damage, destroying hundreds of houses and village churches, and—far more serious mischief—breaking through the river embankments in various places, so that by the following Tuesday hundreds of thousands of acres of the great plain of Bêtsimitâtatra and its innumerable adjoining valleys were under water. More embankments gave way as the days went on, so that by the end of the week the fair plain, with its crops of early rice just ready for the reaper, was drowned under four feet or more of muddy water. It was several weeks before

the waters subsided and the plain emerged from its flooded condition; and it may therefore be not unfitting to put on record here what I wrote within a few days after the storm, giving one's impressions of the novel scene.

"If one could forget the terrible losses to the people of Imerina caused by the storm and heavy rains of Saturday night, Jan. 28th, and the sad destruction of the staff of life, the present aspect of the wonderful rice-plain west of Antanànarivo would be full of interest to those who can make a 'scientific use of the imagination.' Last week, to any one gazing westward, or, more exactly speaking, passing his eyes from north-west to west, south-west, south, and south-east successively, the great plain of Betsimitatatra presented one of the most beautiful spectacles that can be imagined. For many miles in every direction there was a sea of verdure and of golden colour also, the later rice being a brilliant green, like a vast meadow; while to the north-west, the golden tinting of the surface over hundreds of acres showed that the earlier crop was ripe and ready for the sickle, a few of the nearer fields being indeed already cut, and the fortunate few rejoicing in the abundant harvest already gathered in. Far away, for more than 20 miles along the valley of the Ikôpa, could be traced the windings of the river which supplies the necessary irrigation for the rice; and from the level surface the low hills of red clay rose in every direction as from a green sea, covered with populous villages, the native churches showing conspicuous among the brown houses by their red-tiled roofs and, in some cases, by their modest towers. Beyond these gentle elevations showed the higher hills: Andringitra's long serrated ridge to the north; Ambôhimanôa's rounded bulk more to the west; further still, the picturesque forms of Antôngona and Ambôhitrambo; and, towering over all, to the south west, the long slopes of the mass of Ankàratra with its many-pointed summit. It was indeed a lovely scene, and never seemed to lose its charm, from its vast extent and its wonderful diversity of colour and of form.

"But now, what a change three or four days have brought about! Except a small portion of the plain immediately west of the Capital, and a little of the country west of the river, all is covered with water; and where an abundant crop of rice waved ready for the reaper, there now stretches a vast extent of water several feet deep, under which some of the greatest embankments and chief roads are completely submerged. In some parts it is difficult to trace the river banks; it is 'water, water, everywhere,' and scores of low hills are now again turned into islands, cut off from all communication, except by canoe, with the world around them.

"But this wonderful waste of waters reminds us that this scene, happily so rare—for no one, we believe, not even the oldest inhabitant, can remember anything approaching it—must have been, a century or two ago, as well as for unknown ages in the past, the usual condition of Betsimitatatra every year in the rainy season. Before the Ikôpa was embanked by some of the old kings of Imerina—some of those with such long names that one has to take a long breath before attempting to pronounce them*—there can be no doubt that the immense level plain, with its deep inlets on either hand, was an equally immense lake, with numerous bays running up between the rising grounds; without indeed the long lines of huts which now stand out of the water, or the villages on the red clay hills, but with papyrus and bamboo-grass and rush, and clouds of waterfowl—just as now on the Alaotra lake in Antsihanaka—and with patches of primeval forest on the surrounding land. Then the Hippopotamus snorted and rolled his unwieldy bulk in the streams and lakes; the great Æpyornis raced over the neighbouring downs; the Crocodile sunned himself on every sandbank; and the huge Tortoise, now confined to the little island of Aldabra, crawled over the low hills; and

* Andrianjaka, Andriantsitakatrandriana, and Andriamâsinavàlona were some of those ancient royal worthies, so tradition says.

probably many other long extinct birds and beasts lived their lives in and around the great Imerina lake. For century after century the heavy rains—heavier probably then than now, from the greater extent of forest—went on filling up the deep valleys with the rich black and blue loam of the rice-plain; gradually the lake became less and less deep; slowly the river cut out its bed; and then man came on the scene, and the old Imerina kings—they are well worthy of remembrance and honour—aided nature by embanking the river; and so, by slow degrees, the vast marshes and lakes became the magnificent rice-field of the Hova and the granary of Antananarivo. May ‘a wise and understanding heart’ be given to the present Sovereign and her advisers, that they may devise such measures as shall repair for a long time to come the ruined embankments of the Ikopa; that so no one now living, may ever again see the Betsimitatatra plain transformed into its original lake form, but that with plentiful harvests it may gladden the eye year after year, and satisfy the needs of the densely populated region all around it.”—JAMES SIBREE. (ED.)



NATURAL HISTORY AND BOTANICAL NOTES.

A New Fossil Lemuroid from Madagascar.—We extract the following from the *Geological Magazine* of July of the present year, which is again taken from *Proc. Roy. Soc.*, June 15th, 1893:—

“There has lately been sent to the British Museum (Nat. Hist.) a large collection of remains of Vertebrates from the south-west coast of Madagascar, comprising bones of *Aepyornis*, remains of *Hippopotamus*, of *Potamochoerus*, a sp. of *Crocodylus robustus*, and of two giant Tortoises (*Testudo*). Amongst these were discovered a somewhat imperfect Mammalian skull and lower jaw. They were obtained by Mr. J. T. Last, from a marsh at Ambôlisâttra, beneath a stratum of a white clayey substance (shell-marl) about two feet in thickness. The skull was placed in the hands of Dr. C. J. Forsyth Major, well known for his researches in the fossil Mammalia of Samos and various European localities, and has been determined by him to be that of a gigantic form of fossil Lemuroid, related to the extinct genus *Adapis* as well as to existing Lemuroids....Dr. Major names this new form *Megaladapis madagascariensis*.”—EDS.

Eulophiella Elisabethæ, the New Madagascarian Orchid.—Considerable sensation has been caused in England in consequence of the discovery by a M. Hamelin of a new and beautiful orchid in Madagascar, which has been named *Eulophiella Elisabethæ*. The sensation has been heightened by the romantic story of adventure given by this gentleman in a letter to Messrs. Sanders of St. Albans, the well-known orchid growers. Unfortunately, however, that gentleman, for some unknown reason (possibly to secure a high price for his plants), has so larded his story with exaggerations, that not more than a tithe of it can be credited by anyone acquainted with Madagascar. The procuring of the orchid has been surrounded by an air of mystery and danger fully calculated to raise the price of this interesting plant in any European market. We give a few extracts from this romantic adventure, from which it will be seen that this gentleman's *facts* have been very largely drawn from his imagination:—

“*Eulophiella Elisabethæ* hardly exists now. The plant grows in a country inaccessible to Europeans. I had a special privilege accorded me to penetrate those regions, etc.” “This plant only grows in a very limited region

(I believe he somewhere states 'a swamp') ... on the tops of the tallest trees." "Under the special care of my brother-in-blood... to prevent the total extinction of the species." "Amateurs may trust that no plant of this species can or will be imported." "Enormous difficulties and manifold dangers have to be surmounted before even the country where they grow can be reached." "I had numerous obstacles to overcome, and was obliged to make enormous sacrifices, and to incur fearful expenses, etc." "An amateur paying one hundred shillings for a plant would not cover the cost. Not counting the constant exposure of my life, and the lives of those accompanying me, not only was our party exposed to the risk of being strangled by ferocious and hostile tribesmen—a fate that befel many a poor fellow belonging to our expedition—but we had to struggle almost night and day against the wild animals haunting these primeval forests. The most terrible of all is the *protocrypta ferox* Madagascariensis (*sic*), against which we had constantly to be on our guard. During the day-time it is extremely dangerous, for it crouches in the forks of trees... and watches for its prey." (The latter half of this passage is pure fabrication.)" "Big fires had to be constantly kept up, etc." "The favourite haunt of the *Protocrypta ferox* seemed to me to be amongst the masses of foliage where the *Eulophiella* grew. Here they were numerous." "Appalling danger." "There are also some gigantic hippopotamus and rhinoceros fossils in Madagascar, which I found in certain parts, and which, according to their bones, must be nearly six times as large as our elephants." (!)

Now the truth is that no Rhinoceros bones have ever been discovered in Madagascar; and the bones of the extinct Hippopotamus indicate an animal of rather small dimensions. The one fact connected with this story is that M. Hamelin has discovered a new and interesting orchid somewhere in Madagascar, probably in the south or south-west, where travelling is somewhat dangerous; the rest is almost entirely pure romance.—R.B. (ED.)

The *Cryptoprocta ferox* or Fosa.—"Two specimens of that rare creature, the Tree Lion (*Cryptoprocta ferox*), just brought from Madagascar, were offered for sale the other day in Cheapside by auction. Two years ago a good specimen was secured for the Zoological Society, but this was probably the only one existing in this country previous to this latest importation. A writer in the *Saturday Review*, who saw the two strange creatures, describes them as having delicate muzzles peeping out of a heap of soft brown fur, and eyes, brighter if possible than those of a young Fox, watching everything with fearless look. They sat embraced, their long tails curled about one another, like Monkeys. They were bought in at 85 guineas. The Foussa, or *Cryptoprocta ferox*, is the only genus of the family *Cryptoproctidæ*, and it is found nowhere but in Madagascar. In some respects it is something like a Civet-cat, but it is more nearly related to the true Cat. It is, in fact, not unlike a Cat, with a longer body, a longer tail, and a more pointed muzzle."—*London Daily Paper*.

"Good Egg-sample!—One egg was sold the other day for £160 18s; *vide Times* of Wednesday last. The egg was a perfect specimen of that *rara avis in terris*, the gigantic *Æpyornis maximus* of Madagascar. What did Mr. Stevens do with it? Did he have it made into several omelettes for a breakfast party of a dozen? Of course it was a perfectly fresh egg, and the only thing at all high about it was the price."—"*Punch*," July 22, 1893.

The Extinct Madagascar Hippopotamus.—The following measurements, taken from remains of fossil Hippopotami from Antsirabé, give the approximate

* For facts about this Madagascar animal, whose scientific name is *Cryptoprocta ferox* (Bennett), see translation from M. Pollen's account of it in ANNUAL XIII., p. 120. See also the following paragraph.—EDS.

size of this animal:—Length from snout to root of tail, about 7 feet. Height from ground to spine, about 3 feet. The height of the ordinary *Hippopotamus amphibius* is, according to *Chambers's Encyclopedia* (1890), 5 feet, and the length is given by Prof. Martin Duncan as reaching to 12 feet.—C.F.A. MOSS.

Additional Notes from the S. E. Coast.—Mr. Connorton asks us to include in his "List of Fishes, Mollusca, etc.," given in last year's ANNUAL, pp. 459-463, the *Sökindriaka* (*sökina*, hedgehog; *riaka*, sea) or Sea-urchin (*Echinus sp.*); and also sends the following notes.—J.S. (ED.)

He remarks about a bird called *Ziny*, that "up to the present it has been regarded as mythical, and is so described in the New Dictionary. I feel certain, however, that it exists and is a bird of nocturnal habits. It has been regarded as mythical from the fact that when its wings open, so it is said, a kind of light comes from the under part, like that of the firefly. I have not seen the bird myself, but am assured by people whom I have no reason to doubt that it does exist. It is said to appear only at night, that its eyesight is defective, and that nature has placed a kind of light, which comes from the working up and down of the wings, so that it may see food. I am trying to get you a specimen."

The Smaller Peregrine Falcon.—"What a plucky little bird the *Tsipàra* is; you have it in your Table as *Falco minor*. It is not a common bird on the coast, but during the past week a couple of these Falcons have regularly visited Mānanjāra and made great depredations among the poultry. Two days ago I saw a veritable piece of clever work on the part of Mr. *Tsipàra*. An old duck, with a brood of ducklings, was paddling about in the river, just in front of my place, and seemed to be thoroughly enjoying it, when a *Tsipàra* appeared on the scene and made a dash at them. But the duck was on the alert, she quacked loudly, spread out her wings, and looking most fierce, drove off the enemy. This was repeated for quite ten different times; there were numbers of people about, but this did not disturb the Falcon at all. At last he went off, but it was only a ruse, for in about five minutes he reappeared, at first as a mere speck in the distance, but came on most rapidly and, without even circling, made a dash into the brood of ducklings and secured one. The rapidity with which he went off with his prize was astonishing; I never imagined the bird could fly so quickly, especially when hampered with such a weight."

The Trāndraka (*Centetes ecaudatus*).—Of this small animal, which takes in Madagascar the place of the Hedgehogs of other parts of the world, Mr. Connorton writes to me: "Have you ever noticed the large number of young ones which these animals produce? About a month ago a little terrier pup of mine rooted out a nest of them, and we found 22 young ones! The same pup two or three days ago found another hole with 17 young *Trāndraka*. They are very easily reared and soon become quite tame; the only food they require is a supply of earth-worms."

Small Carnivora.—"There is a small animal, something like a Weasel and called *Alāza*, which is very common on this eastern coast. I do not see the word in the Malagasy Dictionary. Is it known in the interior? It is quite a terror to the poultry yard."—J.G.C. [This animal is apparently not known by this name in the interior; probably it is a species of *Galidia*, small carnivorous animals of genera peculiar to Madagascar.—J.S. (ED.)]

Notes on some Malagasy Birds rarely seen in the Interior.—During the year 1893 a specimen of Soumagne's Owl (*Heliophilus Soumagnei*) was taken in the upper forest of Eastern Imerina. It had previously been secured near Tamatave, but this is the first time, so far as I have heard, of its being seen so far in the interior. It was of very beautiful yellow colour, with less of the brown mixture on the back than in the common Barn Owl (*Strix flammea*), but deeper yellow underneath (on the belly). Lesson's Ground Roller (*Brachypteracias leptosomus*) has also been secured in the upper forest.

During the very severe hurricane which blew over Imerina at the end of January last, some Frigate-birds (*Fregata minor*) were carried to the centre of the island. One individual was captured some three or four miles north of the Capital and came into my possession. It measured 30 inches from the tip of the beak to the end of the tail, and 68 inches from tip to tip of the extended wings. Another specimen which I also obtained was captured in the great plain between the two forests. One of these birds had a grey head and neck; the head and neck of the other were of the same dark brown colour as the body, but it had a crimson fleshy pouch under its throat. This was a female, and I suppose the other was a male bird. If the one taken in Imerina had been blown up from the east, the direct distance traversed may have been a little under 100 miles, but it must have crossed the two belts of forest. If (as seems most probable) it came from the west, it must have traversed very nearly 200 miles. It may be mentioned that no instance has been previously recorded of these birds flying so far inland. The ones referred to were in a very exhausted condition when taken. Another of these birds was captured near Ambatovory at the same time.

A specimen of the Pitta-like Roller (*Atelornis pittoides*) was shot in November in the garden of the house occupied by Capt. Hall, on the east of the hill on which the Capital stands. As this bird is one of the Ground Rollers, with very short weak wings, it seems very improbable that it could have flown so far from the forest. My conjecture is that it had been brought up alive by some one, and had escaped from captivity; its plumage, however, was quite perfect, which would be against the supposition of its having been caught by a Malagasy, as they invariably pull out the long feathers of one wing. A Broad-billed Roller (*Eurystomus glaucurus*) was flying about the garden of the Mission house at Isoavina, apparently hunting moths. Another specimen of this Roller was shot in Capt. Hall's garden. At Ambatovory (November) a *Toloho* (*Centropus toulou*) was heard and seen, and also a *Vérondréo* (*Leptosoma discolor*), but this latter only on one day.—J. WILLS.

LITERARY NOTES.

New Books on Madagascar.—REV. W. J. TOWNSEND, D.D.: *Madagascar: Its Missionaries and Martyrs*; London: 1893.—BARON DE MAUDAT GRANCEY: *Souvenirs de la côte d'Afrique: Madagascar, Saint-Barthémy*; Paris: 1892; pp. 308, 18mo.

The following portions of M. Grandidier's great work, *Histoire physique, naturelle et politique de Madagascar*, have been issued during the years 1892 and 1893:—

25e Fascicule, *Hyménoptères*, par Saussure; texte, pp. 590.

26e fasc., *Histoire des Poissons*, par Sauvage; texte, pp. 543, et fin de l'atlas, 9 plates.

27e fasc., *Histoire des Plantes*, par

le Dr. Baillon; atlas, t. ii., 2 partie, 44 pl.

28e fasc., *Histoire des Formicides*, par Forel; texte, pp. 243, et 7 pl.

29e fasc., *Histoire des Hyménoptères*, par Saussure; atlas, 1 partie, 27 pl.

30e fasc., *Histoire des Plantes*, Baillon; Atlas, t. ii., 3 partie, 37 pl.

31e fasc., *Histoire de la Géographie*, texte, pp. 300 environ.

32e fasc., *Histoire de la Géographie*; atlas, 2 partie, 30 pl. de fac-similes d'anciennes cartes et plans, complétant les 37 de la première partie.

33e fasc., *Histoire des Plantes*, Baillon; t. ii., atlas, 4 partie.

34e fasc., *Histoire des Mammifères*, par

feres, par Milne-Edwards, Grandidier et Filhol; atlas, t. ii., 2 partie; *Ostéologie et Myologie* (sera fini en Dec.).

35e fasc., *Histoire des Mammifères*; texte, t. ii., 1 partie (Lemurs), paraîtra dans le courant de l'année prochaine; la partie anatomique est à peu près terminée, mais la partie descriptive et meurs va commencer. [The above list and notes kindly supplied by M. Grandidier. —EDS.]

Pamphlets and Papers (English).—R. BULLEN NEWTON, F.G.S.: "On the Discovery of a Secondary Reptile in Madagascar (*Steneosaurus Baroni*;—N. sp.);" etc. *Geol. Mag.* Dec. III. vol. x. No. 347; pp. 193-198; with Plate [see ante, p. 26].—REV. J. SIBREE: "A new Carnivorous Animal from Madagascar (*Cryptoprocta*);" *Leisure Hour*, Dec. 1892; pp. 135, 136, with illustrn.—Also, "Christian Work and Progress in Madagascar;" *Christian World*, Sept. 1893.—"A Malagasy Ghost-story;" *Chambers's Journal*, Sept. 9, 1893; pp. 571-575.—MISS BLISS: "A Malagasy Itinerant Preacher;" *Chron. L.M.S.* Aug. 1893; p. 224.—REV. J. A. JENKINS: "Welsh Missionaries in Madagascar;" *Chron. L.M.S.*, Feb., Mar., Apr., Aug., and Oct., 1893, pp. 11.—MRS. L. C. MEYER: "Madagascar," in *Far Off*, Pt. II., pp. 419-467, 9 illustrns.; London: 1893.—C. DAVIES SHERBORN, F.G.S.: "Recent Researches on the Fauna and Flora of Madagascar;" *Natural Science*, No. 19, Sept. 1893, pp. 192-196.—DR. W. T. BLANFORD: "Madagascar," in Anniv. Address, 1890; *Quart. Journ. Geol. Soc.*, vol. xli. 1890; pp. 87-90.—REV. A. H. COOKE: "On the Geographical Distribution of the Mollusca of the Malagasy Region;" *Conchologist*, 1893; p. 131.—DR. FORSYTH MAJOR: "On the *Megaladapis madagascariensis*, an extinct gigantic Lemuroid;" *Proc. Roy. Soc.* 1893.

Foreign.—"Voyage à Madagascar par M. le Docteur Catat;" *Le Tour du Monde*, Jan. 1893, et seq.—HERR J. HEIZMANN: "Das heutige Madagaskar; Original bericht von....;" *Geographische Nachrichten*, Basel:

Feb. 1893; pp. 33-40, 51-59.—MONS. DE MAHY: "Madagascar et les Intérêts français;" *Bull. Soc. Commerciale de Paris*, tome xv. No. 1; pp. 23-35.—MONS. DE KERGOVATZ: "Une Semaine à Diego-Suarez (Madagascar);" *Le Tour du Monde*, liv. 1690, 27 Mai; 1893.—ABBE THEODOSE CASTAING: "Sainte Marie de Madagascar, ou la France orientale;" *Bull. Union Géogr. du N. de France (Douai)*, tome xiv., 2 trim. 1893; pp. 133-175.—MONS. D'ANTHOUDARD: "Madagascar;" *Revue Universelle de Farjas*, Nov., Déc. 1892, and Jan. 1893.—REV. PERE CAMBOUE: "Coutumes juives à Madagascar;" *Revue générale de Bruxelles*, Dec. 1891; and "La Soie d'Araignée;" *Rev. des Sciences Naturelles appliquées*, 20 Mars 1892.—MONS. MARIUS CHABAUD: "Rapport sur sa Mission à la Réunion et Madagascar;" *Bull. Soc. Etudes Colon. et Marat.*, Fév. et Mars 1892.—MONS. HENRI DULIOT: "Notes sur son Exploration à la Côte ouest de Madagascar;" *Annales de Géographie*, Jan. 1892; pp. 196-199; Avril, pp. 309-323, avec cartes; and "Récit de son Voyage dans la Région occidentale de Madagascar;" *Bull. Soc. Géogr. de Paris*, Nov. 1893.—DR. BESSON: "Voyage à Ikongo;" *Bull. Soc. Géogr. de Paris*, Nov. 1893.—MONS. GEORGES FOUCART: "De Tamatave à Tananarive;" *Bull. Soc. Géogr. de Lille*, 1890; and "Rapport commercial sur Madagascar;" *Moniteur officiel du Commerce*, 5 Jan. 1893.—MONS. A. GRANDIDIER: "Les Coordonnées géographiques de Tananarive et de l'Observatoire d'Ambôhidempona (fondé par le Rev. Père Colin);" *Comptes-rendus de l'Acad. d. Sciences*, 25 Sept. 1893; pp. 416-419.—MM. MILNE-EDWARDS et GRANDIDIER: "Note sur les Ossements d'*Epyornis* rapportés par M. G. Muller;" *Comp. rend.* Oct. 1893.—MONS. E. GAUTIER: "Mission à Madagascar (de Mojangà à Tananarive par Befandriana et Mandritsàra);" *Annales Géographiques*, Apr. 1893; pp. 355-364.—MM. J. DE GUÈME et RICHARD: "Sur quelques Entomostracés d'eau douce de Ma-

dagascar;" *Bull. Soc. Zool. de France*, t. xvi., 28 Juillet, 1891; pp. 223, 224; and "Nouveaux Entomotraces d'eau douce de Madagascar (*Alona Cambouei* et *Canthocampthus Grandidieri*);" *Mém. Soc. Zool. de France*, t. vi. 1893; p. 214.—MONS. J. DE GUEME: "Sur deux Phyllopoëdes de Madagascar;" *Ann. Soc. Entomol. de France*, 24 Fev. 1892; pp. lv. lviii.*—DR. A. VOELTZKOW: "Von Beseva nach Soalala, Reise-Skizze aus West-Madagaskar;" *Zeit. Gesell. Erdkunde Berlin*, Bund xxviii. No. 2, 1893; pp. 137-161,* with map.—M. JOEL LE SAVOUREUX: "Madagascar;" *Scot. Geogr. Mag.* vol. ix. No. 3, 1893; pp. 127-141.—HERR R. BURCKHARDT: "Ueber *Æpyornis*;" *Palæont. Abhandlungen*, n.f. vol. ii. pt. 2, 1893.—F. CORTESE: "Appunti geologici sull' isola di Madagascar;" *Bol. Com. Geol. Ital.*, 1888; Nos. 3 and 4, p. 103.—RENAULD, CARDOT, and STEPHANI: "Musci exotici novi vel minus cogniti;" *Bull. Soc. Botan. Belge*, vol. xxx. 1892, p. 181, and vol. xxxi. 1893, p. 190.—STEPHANI: "Hepaticæ Africanæ;" *Hedwigia*, 1892; p. 198.

Works in Malagasy.—From the L.M.S. Press:—*Hevi-teny amin' ny Epistily nosoratan' i Yakoba* (Commentary on the Epistle of St. James); by REV. R. BARON, F.G.S.; 8vo, pp. 77.—*Ny amin' ny Baiboly Voahitsy* (Papers on the Revised Malagasy Bible); by REV. W. E. COUSINS; 12mo, pp. 64.—*Ny amin' ilay Zohy mahagaga atao hoe Katakomba* (On the Roman Catacombs); by REV. A. S. HUCKETT, 12mo, pp. 23.—*Famonjena lanteraka* (Complete Salvation); by REV. A. S. HUCKETT, 12mo, pp. 28.—*Ny Fiainana be dia be* (Life more abundantly); by Rev. W. Hockett; 12mo, pp. 27.—*Ny Toetran' i Jesosy Kristy* (The Character of Jesus Christ); by REV. R. BARON, 12mo, p. 10.—*Eklezia: dia ny amin' ny Fiangonan' i Jesosy Kristy*, etc. (Ecclesia: the Church,

its Officers, Sacraments, and Discipline); by REV. J. SIBREE (ed.); 12mo, p. 122.—*Diksiônary amin' ny Baiboly* (Bible Dictionary), pt. I., ABA-EKS, pp. 154 (new edition); edited by REV. J. SIBREE.—*Teny Soa* (Good Words), vol. xxviii. 1893, pp. 192; edited by REV. J. RICHARDSON.

From the F.F.M.A. Press:—*Ny Zavatra Rehetra* (Sermon on Rom. viii. 28); by DR. RAJONAH, 12mo, pp. 19.—*Lesona amin' ny Asan' ny Apostoly* (Lessons on the Acts); by MISS E. M. CLARK; pp. 72.—*Ny Zava-mahamamo* (Intoxicants); by MISS CLARK, 12mo, pp. 24.—*Ny Tefoedra. Ny Mahatonga azy, sy ny Fisakanana azy* (Typhoid Fever: its Causes and Prevention); by DR. S. B. FENN; pp. 8.—*Ny Sakaizan' ny Tanora* (The Friend of the Young), vol. xvi., 1893, pp. 192, illustd.; edited by MR. J. C. KINGZETT.—*Ny Sôvoka, na ny Aretin' ny Mpifina* (Puerperal Fever); by DR. C. F. A. MOSS; pp. 12, 8vo.

From the S. P. G. Press:—*Tantar' ny Eklezia Anglikana fahiny* (Ancient English Church History); by late REV. A. M. HEW LETT, M.A.: demy 8vo, pp. 140.—*Hevitra avy amin' ny Boky Fahadimy nosoratan' ny Rev. R. Hooker momba ny Fitondrana ny Eklezia* (Thoughts from Hooker's Fifth Book on Ecclesiastical Polity); translated by A. TACCHI: dm. 8vo, pp. 178.—*Hevi-teny amin' ny Apokalipsa* (Commentary on the Revelation); by REV. F. A. GREGORY, M.A.; dm. 8vo, pp. 174.—*Fivavahana Maraina sy Hariwa* (Morning and Evening Prayer); fcp. 8vo, pp. 31.—*Tantara sy Hevitra* (Stories and Thoughts), vol. for 1893; pp. 192, 8vo.

From the N. M. S. Press:—*Hevi-teny amy ny Epistily ho any ny Filipiana sy ny Kolosiana, nataony August Döchsel; nadikany L.S.* (Commentary on the Epistles to the Philippians and the Colossians); pp. 107, 8vo.—*Vokabolary Malagasy sy Norsky, hianarana teny Norsky*

* We are indebted for all the items in the foregoing list of papers in French and German periodicals to the kindness of my friends and correspondents, M. Alfred Grandidier of Paris, and
n of Bremen.—J.S. (ED.)

tsotsotra (Malagasy-Norsk Vocabulary, for learning simple Norsk); pp. 113, 8vo.—*Ny Mpamangy* (The Visitor), vol. for 1893; pp. 192, 8vo.

A Brief Note on the Dialects of Madagascar.—For many years I have had a desire to compile a comparative table of the dialects of the various tribes inhabiting the island of Madagascar, and last May I got out a list of 184 common words; and with the cordial approval of His Excellency the Prime Minister, I issued 74 of these lists to as many governors throughout the length and breadth of the island. To these I have only, as yet, received 24 replies: 9 from the east coast, from Antomboka in the north to Mahamàina in the south; 5 from the west coast, from Anòrontsànga in the north to Fiherenana in the south; and 10 from the central provinces, from Antsihànaka in the north to Ihòsy in the south, and from Ankavàndra in the west to Belànona in the east. Of these, 19 are my own lists carefully filled up; 5 are, unfortunately, not my own, but independent and longer lists; while many have sent very valuable supplementary lists, some of which comprise as many as four to five hundred words, with notes and explanations. I do not yet give up hopes of receiving many more; but until a greater proportion come in, I cannot attempt a classification. I purpose issuing a booklet, with map and notes, when I get a sufficient number to justify the undertaking.

There are, however, some interesting things in the replies already received.

For the word 'father' (Hova, *ray*), we find: *làba*, *ada*, *daday*, *bàba*, *rae*, *biàza*, and *fibèza*; for the word 'mother' (Hova, *rèny*), *nindry*, *njàry*, *riny*, *injàry*, *nànja*, *niny*, *rèné*, and *èndry*; for the word 'child' (Hova, *zàza*), *kobònana*, *njàriàhy*, *àna-jàza*, *pèlika*, *tsaika*, *marify*, *ajàha*, *renaika*, and *hòmanàfo*.

Many of these words are already in the Dictionary, but from these lists we shall be able to localize every one.

I find that wherever *vòlana* (or *vòla*) is the name of the moon, *vòla*

is the word used for money; but where *fanjàva* is the word used for moon, *fanjàva* is also used for money. I shall have something to say about this in my booklet.

There are some words, which are common and respectful in Imerina, which have in many instances an obscene meaning in the provinces, among which I can only instance the word *mivàdy*. There is again a large class of words, the meaning of which is quite different from that recognized in Imerina, and which must lead to much misunderstanding when used as we use them here. From a mere cursory glance at the lists I have culled the following:—

<i>mihàja</i>	is used for	<i>mihinana</i> ,
<i>mosarèna</i>	„ „ „	<i>nòana</i> ,
<i>sòsotra</i>	„ „ „	<i>sahirana</i> ,
<i>mahiratra</i>	„ „ „	<i>mirèsaka</i> and <i>mahita</i> ,
<i>malaina</i>	„ „ „	<i>mandà</i> ,
<i>manambàra</i>	„ „ „	<i>milàza</i> ,
<i>òry</i>	„ „ „	<i>rèsy</i> ,
<i>manàno</i>	„ „ „	<i>mamàno</i> ,
<i>matèsa</i>	„ „ „	<i>mateza</i> ,
<i>mànana aho</i>	„ „ „	<i>gàga aho</i> ,
<i>màsina</i>	„ „ „	<i>mahàrikivy</i> ,
<i>matàtòà</i>	„ „ „	<i>ràharàha</i> ,
<i>fitaka</i>	„ „ „	<i>tànylemaka</i> ,
<i>manàno hao</i>	„ „ „	<i>manao vòlo</i> ,
<i>ampij</i>	„ „ „	<i>vàratra</i> ,
<i>manàry</i>	} are „ „	<i>mandèvina</i> ,
<i>mamoy</i>		
<i>miàsa lólo</i>	} is „ „	<i>mihaotra</i> ,
<i>mangàro hao</i>		
<i>màramàra</i>		
<i>mamètra</i>		
<i>ràva</i>		
<i>mihira</i>		
	etc.; etc., etc.	

One of the governors informs me that, on one occasion, some chief wrote him saying: "*Tongan-drànona ny aombiko*," and the governor, fresh from Imerina, wrote a letter of thanks to "*Ranona*" for his kindness in bringing back to their owner the lost oxen, and lo! he found out that *tonga* was a euphemistic expression for *thieving*, just as *làsa* is used by us in Imerina.

There are some curious instances of the interchange of *-na*, *-ka*, and *-tra*; thus we have *lohàlitra* for *lo-*

hàlika, etc. Then we find the defective parts of Hova verbs freely used, as *mamàrotra* for *mivàrotra*, *mangady* for *mihady*, etc. Alto-

gether, I feel sure that we shall get an immense amount of interesting matter, when these lists are fully prepared.—J. RICHARDSON.



BRIEF SUMMARY OF IMPORTANT EVENTS IN MADAGASCAR DURING 1893.

Public Events.—The two prominent events of the past year are (1) the heavy storm of the night of Jan. 28, and part of the following day, together with the subsequent flooding of the great rice-plain and its connected valleys; and (2) the very fatal epidemic of influenza during the month of August, which attacked thousands of people and caused the death of very large numbers. But these visitations have each been described in separate articles in the preceding pages, see pp. 100 and 116.

Educational.—On the 10th of February an important addition was made to the public buildings of Antananarivo by the completion, and the opening by Her Majesty Queen Ranavalona III., of the new building for the London Missionary Society's Girls' Central School. The new School House is erected on a square plot of ground opposite to the R. C. Cathedral, in a very central position in the Capital, and fronting the principal thoroughfare of the city. It was designed by Mr. Wm. Johnson, of the F.F.M.A. mission, and consists of a central portion and projecting wings at each end, both of these being finished with gables and small stone turrets. The chief room is 44 feet long by 30 feet wide, and there are six class-rooms. The chief front of the block is built in red burnt-brick, with stone bases, dressings, and finials.

In Memoriam.—It is with great regret that we record the untimely death of M. GEORGES MULLER, a French naturalist and explorer, who arrived in Madagascar in the month of May, charged with a scientific mission. M. Muller's object was to complete, as far as possible, our knowledge of the fauna and palæontology of this country, especially to search for complete skeletons of *Æpyornis*, and also to fix certain points still imperfectly known in the physical geography of the island, particularly the river-systems and mountain-ranges. On Sunday, the 23rd of July, at about six or seven hours' journey from the Hova post of Iobaka, he and his followers were attacked by a party of brigands. The soldiers of his escort, after a few ill-directed shots, took to flight, as did his bearers and porters, leaving M. Muller to face the enemy alone. Two of them were shot by his own hand, but he presently fell, pierced by three musket balls. The miscreants then rushed upon him and killed him with their spears, afterwards cutting off the head of the corpse and otherwise mutilating it. The remains were eventually brought to the Capital, and on the 17th of October were interred at the French cemetery at Ambôhipô, after a requiem mass, with full musical and military honours, at the R.C. Cathedral. M. Muller's sad death is a great loss to science; and it is a melancholy reflection that this is the third or fourth instance, within a few years, of a scientific explorer meeting a violent death in the unsettled parts of this country.

MR. LOUIS STREET.—Although Mr. Street's death should properly have been noticed in our last issue, it is not perhaps too late to say a few words about him here. Mr. Street, with his wife, came from the United States of America to Madagascar in 1867, and, together with Mr. J. S. Sewell, commenced

the Mission of the Friends' Foreign Mission Association in Antananarivo. Mr. Street took great interest in the Malagasy language, and prepared a Grammar and a Dictionary. This latter work was largely illustrated by extracts from native *kabary*, proverbs, and folk-lore; the articles included in two specimen letters only (A and B) were printed, but the MS. is still available for any future enlarged Dictionary of Malagasy. Mr. Street also commenced the first Malagasy newspaper (*Ny Gazety Malagasy*).

Since Mr. Street's death, his wife has also passed away. MRS. STREET was a warm-hearted and excellent lady and worked hard in the cause of female education, and really founded the Girls' High School of the F.F.M.A.

REV. A.M. HEWLETT, M.A.—The Anglican Mission in Madagascar has this year to mourn the loss of one its most earnest and faithful missionaries. Mr. Hewlett was warmly loved by those who knew him, and won the respect of all classes of society, both in Antananarivo, where he was first stationed, and afterwards at Tamatave. Mr. Hewlett was an excellent musician, and took great pains and pleasure in the training of a choir to lead the musical services of the Anglican Cathedral, of which he was precentor; and he also wrote many Malagasy hymns. Our readers will remember Mr. Hewlett's interesting articles in the ANNUAL, "Some Thoughts on Church Music in Madagascar" (No. x.), and "Mantasôa and its Workshops" (No. xi.).

DAILY TABLES OF THE TEMPERATURE AND RAINFALL AT FARAVOHITRA FOR 1893.

THE readings given on the following pages were taken at the L.M.S. College, Faravohitra, 4700 ft. above the sea-level.

The first column shows the day of the month; the second, the rainfall for the 24 hours previous to 8 a.m.; the third, the temperature (minimums) during the night; the fourth, the average for seven years; the fifth, the maximum temperature in the shade during the day; and the sixth, the average for seven years. At the foot of the several columns is given, in order, the total rainfall for the month, the average temperature (min.) for the month, the same during seven years, the average maximum temperature for the month, and the same for seven years.

The average *mean* temperature of April, September and October was 5° to 6° above the average, whilst that of January, February and July was 2° to 3° below it.

October and especially November were phenomenally dry months, the rainfall being the least during those months for 13 years. The rainfall for December has been the heaviest known for 13 years. On the night of the great storm of Jan. 28th, there were 4.7 inches of rain measured.

I am indebted to Père Combe, Director of the Observatory, Ambôhidempona, for the readings for the greater part of August, some malicious person having broken the College thermometer.

I append a Summary of Rainfall and *Mean* average Temperature for each month.

JAMES SHARMAN, B.A., B.D.

	Rainfall,	Average for	Mean Temp.	Aver. Mean Temp.
	1893.	13 yrs.	1893.	for 7 yrs.
January	11.67	11.53	67.55	67.58
February	11.3	9.19	65.1	68.02
March	5.87	6.59	63.75	65.8
April	3.41	2.00	65.95	59.55
May	2.38	.07	57.2	58.65
June .....	.42	.6	55.75	54.29
July .....	.35	.17	50.9	53.33
August .....	.03	.18	55.65	54.06
September .....	.03	.68	63.7	58.68
October	1.975	3.37	68.6	63.53
November .....	.6	5.25	65.95	65.66
December	18.98	12.11	69.9	67.79

JANUARY.						FEBRUARY.						MARCH.					
Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.
1		55.	59.99	76.	76.71	1	.15	58.	62.14	64.	75.85	1		58.	59.85	73.5	74.92
2		57.	59.7	80.	75.11	2	.08	55.	61.	69.	76.11	2		59.5	60.78	76.5	74.87
3		57.	58.85	78.	73.85	3	.18	57.	61.71	72.	75.68	3	.7	58.5	60.21	74.	74.99
4		58.	59.56	78.	75.7	4	.32	57.	61.28	75.	75.	4	.29	59.	60.28	74.5	74.78
5		58.	59.85	82.	75.28	5		59.	60.97	76.	75.85	5	2.24	55.	60.14	70.5	74.49
6		57.	58.07	79.	75.42	6	.13	57.	60.	73.5	75.49	6	.41	55.	58.49	69.	74.14
7		59.	58.85	80.	76.42	7	.09	57.	60.56	76.5	77.06	7		57.	58.37	72.	73.56
8		58.	60.57	76.5	75.72	8	2.69	56.5	60.61	75.	76.97	8		62.5	60.01	73.5	75.49
9		57.	60.08	75.	76.28	9	1.98	57.	60.42	75.	75.75	9		58.	59.37	74.	74.99
10		56.	59.94	78.	75.94	10		57.	60.68	72.3	75.32	10		56.	59.42	71.	73.14
11		57.	60.42	77.	74.56	11		55.	60.65	72.	75.85	11		58.	59.37	75.	74.65
12		57.	59.57	73.5	73.58	12		58.	61.42	74.	76.42	12	.17	57.	59.14	76.	73.94
13		54.	57.56	78.	74.37	13		56.	60.03	73.	76.50	13		55.	58.94	76.	71.71
14		57.	59.14	77.	74.68	14		55.	61.51	75.	76.11	14	.66	57.	59.7	73.	70.94
15		58.	60.14	74.	75.56	15		59.	60.71	76.	75.4	15		55.	59.14	76.	74.8
16		56.	60.14	73.	74.56	16	.17	59.	59.85	76.	75.4	16		55.	57.7	74.	71.42
17		55.	59.28	72.	74.7	17	.93	57.	60.	73.	75.82	17		56.	58.57	69.	70.97
18		53.	59.99	72.	74.22	18		57.	60.28	74.	75.97	18		55.	58.	66.	71.14
19		56.	60.71	74.	74.85	19	.24	58.	60.14	71.	76.28	19		54.	56.7	68.	71.94
20	1.19	55.	60.14	75.	74.65	20		56.	60.28	72.	75.08	20		49.	58.08	69.5	73.8
21	1.9	56.5	59.5	71.	73.42	21	.71	58.	60.22	69.	75.42	21		53.	58.85	67.	73.92
22		56.	60.28	71.	74.42	22	1.48	58.	60.7	70.	73.94	22		52.	58.85	65.	72.11
23		55.5	61.5	75.	75.	23	.05	58.	60.22	73.	74.56	23		53.	58.4	71.	71.25
24	1.74	59.	62.	82.	77.37	24		59.	61.42	75.	74.57	24		58.	57.28	73.	70.28
25		58.	60.7	73.	76.42	25	.6	58.	59.71	73.	73.71	25	.02	58.	57.28	71.5	70.4
26		55.	61.42	71.	75.42	26		58.	59.85	72.	74.14	26		54.	57.28	68.	70.9
27	.44	57.	61.14	74.	76.14	27	1.09	59.	60.28	72.	74.22	27		55.5	57.3	66.	71.14
28	4.7	59.	61.42	67.	74.37	28	.36	58.	60.42	73.5	74.06	28		55.	57.78	75.	72.85
29		58.	61.28	64.5	73.35							29	.35	57.5	59.3	71.	71.85
30	1.5	58.	61.68	67.	74.71							30	1.03	56.	58.42	70.	72.14
31	.2	57.	61.54	69.	76.11							31		56.	57.71	70.	70.51
Tot. 11.67 56.7 60.16 74.4 75.09						11.3 57.3 60.61 72.9 75.44						5.87 56. 58.73 71.5 72.87					

APRIL.						MAY.						JUNE.					
Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.
1		57.	57.85	70.	71.11	1	.42	51.	53.14	57.5	65.49	1	.07	41.5	48.78	55.	61.71
2		55.	58.28	68.	72.14	2	.55	49.	54.28	61.5	65.35	2		44.	48.28	54.	61.11
3		54.	57.94	68.	71.94	3		53.	53.85	66.	65.28	3		41.	46.4	50.5	60.78
4		57.	57.42	73.	71.98	4		53.5	52.47	66.	65.4	4	.04	40.	47.71	53.5	61.04
5		57.	57.85	69.	70.11	5	.65	52.	53.11	62.	65.94	5		43.	49.	55.	61.71
6	.44	56.	58.22	66.	70.54	6		50.	52.22	60.	65.4	6		52.	49.28	64.	62.54
7		56.	58.14	68.	70.82	7	.48	52.	53.37	61.	65.54	7		54.	49.37	65.	62.28
8	.1	56.	58.14	70.	69.28	8		54.	52.25	67.	66.57	8	.01	55.	47.54	66.	61.71
9	.18	55.	56.71	72.	70.14	9		52.	53.71	67.5	67.58	9	.01	57.	48.28	64.	61.94
10	.26	57.	57.25	72.	69.94	10		54.	53.28	67.	68.11	10	.01	52.	48.7	57.	61.28
11	.91	55.	57.14	70.	68.71	11		55.	53.54	67.	66.65	11		59.	50.	64.	62.28
12	.18	56.	56.85	71.	68.85	12		64.	52.28	67.	66.28	12		55.	47.71	65.	60.56
13		54.	56.57	68.	68.85	13		56.	53.94	69.	66.28	13	.01	52.	48.42	61.	59.99
14	.4	54.	56.57	67.5	69.21	14	.28	51.5	53.04	69.	66.28	14		57.	48.08	65.	59.85
15	.37	54.	57.08	67.	69.82	15		50.	52.22	62.5	65.15	15	.02	56.	47.68	61.	58.85
16		55.	57.22	67.	69.22	16		51.	52.37	62.5	64.49	16		54.	45.85	62.	60.54
17		55.	57.14	67.	69.57	17		49.5	51.9	61.5	64.63	17		52.	46.99	62.	61.57
18	.11	56.	56.85	70.	69.14	18		51.	52.37	64.	64.85	18		52.	46.	62.	60.8
19		54.	56.42	69.	68.4	19		49.5	51.49	64.	65.28	19		55.	46.28	65.	60.85
20		54.	55.97	69.	67.54	20		51.5	51.92	63.5	64.78	20		51.	46.42	62.	59.56
21	.43	54.	55.28	66.5	68.49	21		53.	51.28	63.	65.7	21		55.	47.28	62.	59.94
22	.03	53.5	55.3	62.5	67.21	22		50.5	50.32	63.	63.	22		56.	47.68	61.	60.57
23		52.5	55.63	63.5	68.06	23		49.	49.99	64.	63.65	23		56.	47.94	61.	61.
24		52.	56.14	65.	68.28	24		52.	49.94	60.	68.28	24		56.	50.42	62.	61.85
25		53.	54.85	66.	68.14	25		50.	48.54	59.	63.14	25		46.	48.14	60.	61.11
26		53.	54.11	68.	68.51	26		46.	49.08	57.	63.25	26		46.	48.14	58.	59.97
27		54.	54.85	69.	69.13	27		53.	50.42	59.	63.99	27		48.	48.13	61.	60.28
28		51.	53.82	61.5	67.2	28		53.	49.82	60.	62.42	28	.24	49.	48.14	60.	58.07
29		49.	53.28	58.	65.37	29		57.5	51.32	60.	62.42	29		50.	48.28	58.	58.99
30		51.	52.11	58.5	65.06	30		48.	51.37	62.	60.82	30	.01	40.	45.14	57.	59.14
31						31		48.	48.85	60.	62.22						
Tot. 3.41 54.6 50.03 67.3 69.09						2.38 51.4 51.86 63. 65.45						.42 50.9 47.86 60.6 60.72					

JULY.						AUGUST.						SEPTEMBER.					
Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.
1		42.	47.14	51.	58.85	1		41.	44.68	61.5	60.47	1		58.	49.08	72.	63.94
2		45.	48.14	58.	59.71	2		50.	45.97	60.	59.85	2		57.	49.8	69.5	65.49
3		46.	46.71	58.	59.37	3		49.5	45.78	62.	61.14	3		50.	48.8	68.3	66.47
4		45.	47.57	57.5	60.63	4		48.5	46.21	58.	60.7	4		50.	47.5	69.4	63.57
5		45.	48.28	57.5	61.61	5		47.	46.7	57.	60.56	5		58.5	49.07	62.	63.56
6	.10	43.	47.28	57.	59.7	6		41.	45.71	57.	60.56	6		58.5	49.92	72.	64.71
7	.14	47.5	47.07	56.5	59.15	7		41.	46.62	63.	60.7	7		58.	47.56	68.5	65.07
8		48.	46.71	58.	58.71	8		44.	45.98	62.	60.28	8		59.	49.14	68.5	64.9
9		44.	45.11	58.	59.37	9		46.5	46.1	67.5	60.46	9		58.5	50.61	65.	65.99
10		45.	47.22	57.	59.57	10		50.	46.73	60.5	59.22	10		47.	48.38	72.5	65.92
11		43.	46.68	57.5	60.75	11		51.	46.29	63.	60.08	11		60.	51.56	70.	66.7
12	.09	43.	46.68	57.	60.56	12		48.	45.08	62.5	59.48	12		60.	52.14	68.5	66.35
13		46.	47.71	57.	59.82	13		48.	48.19	63.	61.18	13		62.	51.56	70.	65.97
14		46.	46.51	57.5	60.5	14		45.	46.96	65.	61.84	14		61.5	50.78	69.	65.57
15	.02	46.	46.71	58.	60.7	15		47.5	48.78	62.5	62.57	15		62.	50.96	68.5	66.61
16		46.	47.37	56.5	59.75	16		49.	46.93	62.5	63.2	16		61.	51.57	68.	65.56
17		43.	46.28	55.	60.85	17		44.5	48.36	64.5	62.9	17		61.	50.11	67.	64.94
18		46.	47.71	57.	60.56	18		42.	47.84	66.	63.59	18	.03	62.	49.56	72.5	65.35
19		40.	46.51	56.	60.28	19		46.5	45.65	63.5	62.72	19		62.	50.	68.	66.54
20		44.	46.14	58.	60.14	20		49.	46.46	63.	63.7	20		61.	48.65	68.	65.57
21		42.	45.85	56.	62.8	21	.03	51.	48.72	65.	62.27	21		62.	49.85	70.	66.22
22		46.	47.56	55.	58.28	22		45.	47.56	63.5	62.64	22		64.	51.57	68.	67.57
23		45.	46.85	54.	59.4	23		47.5	46.92	65.	61.41	23		63.	51.85	67.	66.85
24		41.	46.65	62.	60.14	24		56.	48.71	63.	61.71	24		59.	51.8	67.	68.37
25		47.5	46.47	60.5	59.64	25		55.5	48.06	59.	62.68	25		62.	52.14	69.	68.65
26		41.5	45.01	59.5	59.78	26		55.	49.13	65.	63.8	26		63.	51.71	68.	68.99
27		42.	44.22	60.	59.57	27		56.	50.	59.	62.94	27		61.5	53.87	72.5	70.61
28		44.	45.71	60.5	59.72	28		51.	50.85	65.	65.85	28		46.5	51.45	72.	70.82
29		48.	46.42	59.5	59.78	29		56.5	50.58	59.	64.57	29		48.	52.45	77.5	71.59
30		46.	46.13	58.5	60.49	30		56.	50.51	65.	64.28	30		62.	55.28	74.	71.08
31		41.	45.28	58.5	60.78	31		58.5	50.01	62.	63.28	31					
Tot. .35 44.4 46.63 57.4 90.03						.03 48.9 46.18 62.4 91.95						.03 58. 50.62 96.4 66.95					
OCTOBER.						NOVEMBER.						DECEMBER.					
Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.	Date	Rain	Min.	Aver. 7 yrs.	Max.	Aver. 7 yrs.
1		63.	54.85	73.	71.14	1		61.	56.85	80.	75.37	1		59.	57.99	79.	76.42
2		64.	4.7	85.5	74.06	2		63.	57.08	72.	72.25	2		53.	57.71	82.	76.51
3		65.	3.99	83.	73.42	3		64.	56.54	72.	71.99	3		59.	57.65	78.	76.71
4		67.5	4.72	74.	69.71	4		57.	56.65	72.	67.85	4		58.	57.78	82.	77.38
5		66.	4.25	73.5	70.75	5		66.	57.	79.	76.56	5		65.	58.28	86.5	77.75
6		56.5	3.35	72.5	68.3	6		51.	55.	78.	76.42	6		62.	58.14	78.	76.78
7		62.	3.68	76.	70.	7		50.	54.4	74.	74.84	7		63.	58.56	86.5	78.62
8		60.	3.85	82.	72.42	8		54.	55.85	75.	74.45	8		62.	57.85	85.	76.42
9		62.	4.42	83.	72.4	9	.03	58.	56.8	80.	75.28	9	.96	63.	57.37	85.	78.14
10	1.075	59.	3.13	84.	70.71	10		56.	54.8	74.	72.99	10	1.76	62.	57.14	80.	77.85
11		54.	3.85	74.	71.08	11	.47	53.	54.85	79.	73.51	11	1.	62.	59.28	75.	78.08
12		56.	3.	74.	69.97	12		55.	55.13	77.	73.42	12	.43	62.	59.68	74.	75.85
13		65.	5.22	74.	70.14	13		50.	53.68	64.	70.71	13	2.88	58.	56.71	75.	76.28
14	.6	65.	4.28	77.5	72.64	14		51.	52.97	72.	74.22	14	.66	55.5	58.07	78.5	76.35
15		62.	6.13	72.	73.97	15		51.	54.85	75.	74.94	15	.02	58.	58.42	79.	77.61
16		58.	5.	74.	73.65	16		52.	55.94	75.	76.97	16		60.	59.4	75.5	77.04
17	.28	62.	5.85	72.	69.68	17		52.	55.94	74.	74.85	17		54.	59.04	80.5	75.35
18		65.	4.28	75.	69.71	18		53.	57.14	76.	76.42	18		60.	59.17	83.5	77.58
19	.02	65.	5.82	73.	68.71	19		53.	55.7	75.	77.77	19		60.5	60.82	86.	77.08
20		61.	3.71	70.	71.56	20		53.	56.42	75.	76.11	20	1.04	61.5	58.92	78.	75.69
21		63.	4.85	73.	72.28	21		54.	55.82	78.	76.	21		61.5	59.3	82.5	77.92
22		64.	4.14	83.	72.11	22		54.	57.	78.	77.65	22	.58	62.	58.14	77.	74.
23		63.	5.99	72.	71.14	23		56.	57.28	80.	76.42	23	1.7	60.5	58.78	74.5	75.2
24		57.	3.14	73.	72.57	24		56.	56.71	86.	77.28	24	.61	61.	58.88	77.	76.14
25		61.	4.64	74.5	73.92	25		54.	56.58	78.	74.42	25	1.3	60.5	59.06	80.5	76.65
26	63.5	7.	7.07	71.	75.14	26		56.	56.97	76.	75.4	26	.02	63.	60.14	76.5	77.17
27		63.	7.71	71.	75.54	27		55.	57.22	82.	77.37	27	1.51	62.	60.62	75.5	78.14
28		63.	6.85	74.	75.85	28		56.	57.37	82.	75.65	28	1.35	62.	58.42	77.5	77.75
29		63.	7.	80.	78.42	29	.1	58.	57.4	84.	77.85	29	.86	62.	59.	75.	75.54
30		63.	6.57	71.	73.14	30		58.	58.	79.	78.28	30	.2	62.5	59.63	82.	77.91
31		55.	54.83	75.	74.5							31	2.1	62.	59.58	78.	78.02
Tot. 1.975 61.8 54.86 75.4 72.21						.60 55.3 56.13 76.6 75.1						18.98 60.4 58.69 79.4 76.9					

MONTHLY MEANS AND EXTREMES OF TEMPERATURE, BAROMETER, RAINFALL, ETC., TAKEN AT MOJANGA.

WE are indebted to Mr. Stratton Knott, H.B.M.'s Vice-Consul at Mojangà, for the accompanying tables. Mr. Knott says: "The Observatory was opened by me on 1st April, 1892, and is one of the second order of the Meteorological Society, London. It is situated on a hill 140 feet high, about one mile from this town, and overlooks the Bay of Bèmbatòka to the south and the sea to the west. The thermometers are kept in a cage under a shed, as advised in Blandford's *Vade-mecum*. The dew-point and vapour-tension are not given, on account of the factors for obtaining them not having been fixed by the hygrometrical savants,"—EDS.

TABLE OF MONTHLY MEANS FROM 1ST NOV. 1892 TO 31ST OCT. 1893.

Months	Barometer reduced to 32° Fahr. at Mean Sea-level		Thermometers				Wind Force (0.12)		Cloud Amount (0.10)		Rain Amount in inches		Thermometers		Weather			
			Dry Bulb		Wet Bulb								Maximum		Solar		Days Rain	
	11 a.m.	5 p.m.	11 a.m.	5 p.m.	11 a.m.	5 p.m.	11 a.m.	5 p.m.	11 a.m.	5 p.m.	11 a.m.	5 p.m.	Maximum	Minimum	Solar	Days	Thunder.	Days
1892	November	29.994	29.989	87.2	82.3	73.5	74.5	1.5	2.3	2.5	3.5	3.40	89.5	74.1		6	7	0
	December	30.009	.940	84.2	82.8	75.7	75.4	.9	1.9	6.6	6.3	7.14	86.8	73.4		12	15	8
	January	29.875	.809	83.5	81.6	76.1	75.6	1.6	1.9	7.4	7.7	20.64	86.0	73.0		18	18	17
	February	.966	.892	84.3	83.8	76.8	76.8	1.1	2.1	6.3	5.6	6.17	87.0	74.8		11	13	7
	March	.954	.878	84.3	84.8	75.9	76.7	1.5	2.0	6.0	5.9	14.67	88.0	73.8		13	15	5
1893	April	30.012	.933	84.9	84.6	75.0	75.7	1.5	1.8	4.3	4.1	4.11	87.8	73.0		5	7	5
	May	.073	30.025	83.7	82.3	71.8	73.2	1.9	1.5	2.7	3.4	.68	87.4	70.7		3	2	5
	June	.124	.049	80.3	79.6	66.3	68.5	2.1	1.3	1.0	2.3	-	84.7	66.4		0	0	0
	July	.152	.078	79.8	79.8	65.4	67.1	1.8	1.3	1.5	3.7	-	84.5	64.9		0	0	3
	August	.198	.113	82.9	81.6	65.3	67.7	2.0	1.3	1.3	5.0	-	87.3	66.0		0	0	0
	September	.093	.019	85.4	78.7	68.0	70.9	1.3	2.2	1.3	2.3	.32	88.6	68.1	154.8	2	0	2
	October	.048	29.969	86.0	80.7	71.5	73.1	1.8	2.4	2.4	2.0	3.80	88.4	71.8	154.9	3	3	1

TABLE OF EXTREMES FROM 1ST NOV. 1892 TO 31ST OCT. 1893.

Months	Barometer		Thermometers			Greatest daily Rain-fall in inches
	Highest reading	Lowest reading	Maximum Highest	Maximum Lowest	Solar Highest	
1892	November	30.094	29.796	97.7	70.2	2.21
	December	.063	.865	93.0	70.2	2.22
	January	.051	.689*	92.8	60.0	4.13*
	February	.026	.765	90.9	67.9	1.69
	March	.035	.773	92.7	70.5	2.75
1893	April	.130	.824	92.1	69.8	1.75
	May	.134	.907	91.7	65.2	0.49
	June	.183	.968	87.9	61.1	—
	July	.189	30.030	88.6	62.0	—
	August	.247	.054	90.7	63.3	—
	September	.167	29.973	93.5	63.0	.31
	October	.101	.889	94.4	66.2	3.28

* A gale from N.W., of force 9, on 29th.]

THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

*A RECORD OF INFORMATION ON THE TOPOGRAPHY AND NATURAL PRODUCTIONS
OF MADAGASCAR, AND THE CUSTOMS, TRADITIONS, LANGUAGE,
AND RELIGIOUS BELIEFS OF ITS PEOPLE.*



EDITED BY THE
Rev. J. SIBREE, F.R.G.S.,
AND
Rev. R. BARON, F.G.S., F.L.S.,
Missionaries of the L.M.S.



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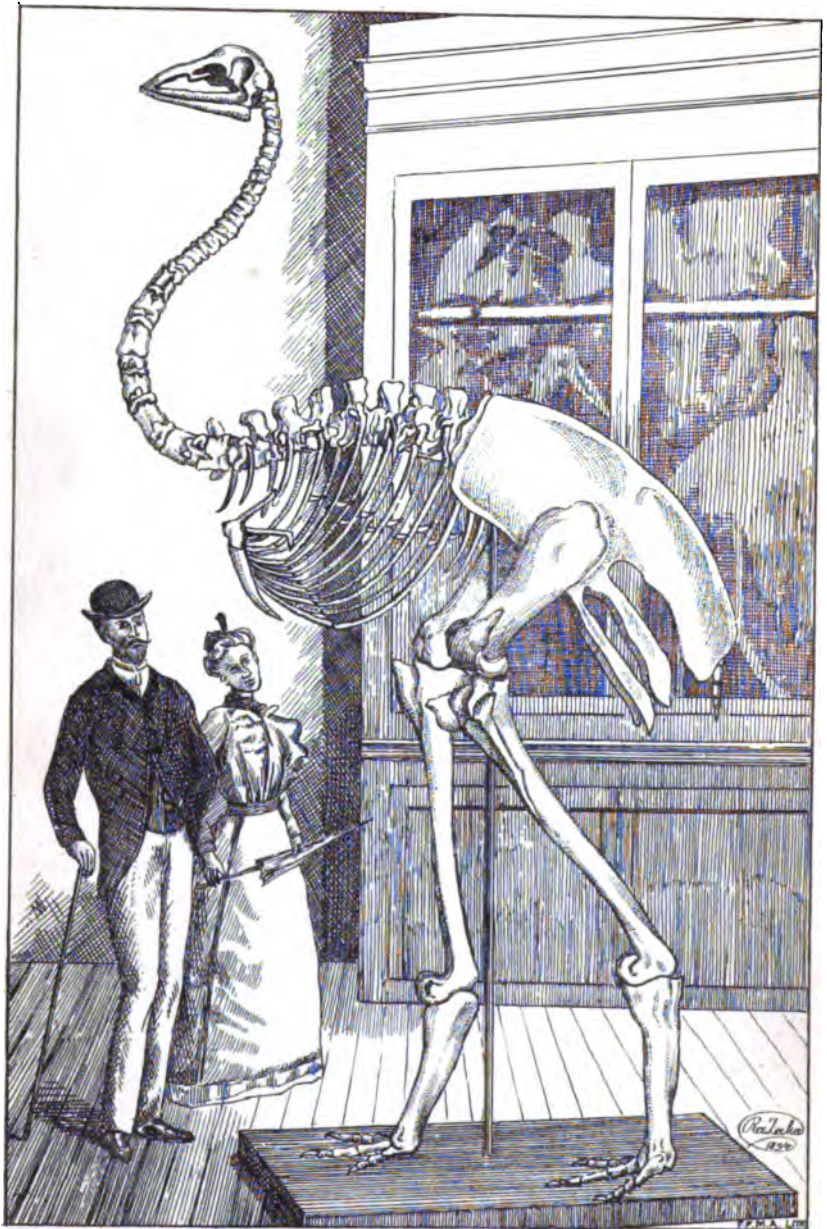
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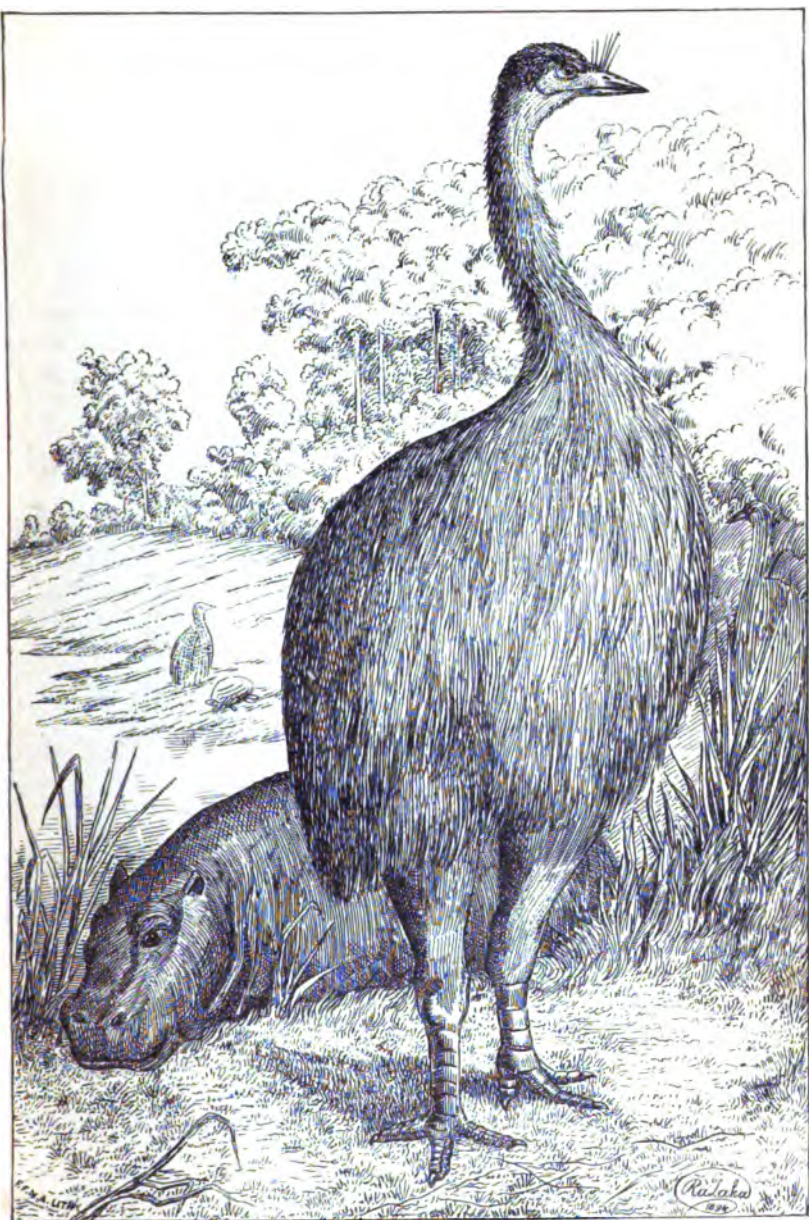
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SKELETON OF *ÆPYORNIS* INGENS.
(In National Museum, Paris.)



RESTORATION OF *EPYORNIS INGENS*.
(*Hippopotamus Lemurii* in background.)

A

THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

THE VAZIMBA:

THE EARLIER INHABITANTS OF IMERINA.

THE inhabitants of Madagascar are divided into some fifteen principal tribes, of whom the greater number, if not all,* have been derived from the extreme East, probably from Indo-China and the Malayan Islands. Most writers on this subject† think that the first Indonesian immigrants found the island inhabited by negroes; the name of 'Vazimba,' which the inhabitants of the interior highlands bore before the arrival of the Hova, as well as its similarity with that of an African tribe, the 'Wazimba,' they think makes it probable, if not certain, that the two tribes have a common origin.

These writers moreover fortify their opinion by a passage in the *Histoire de Madagascar*, where Flacourt speaks of the 'Ontaysatroûha;'‡ and judging from the description which he gives of them, these people certainly appear to have been connected with the great family of the African negroes. It should, however, be remembered that this tribe was not known earlier than the 17th century, and that we cannot place much reliance on the native accounts, which have the appearance of fables resembling those which Malagasy bards are accustomed to relate. Still, however that may be, it is certain that we cannot identify the Ontaysatroûha with the Vazimba of Central Madagascar, as M. de Froberville does, since the country

* The chiefs and the principal families of some of these tribes, especially the Antanôsŷ, the Antaisâka, the Antaifâsy, the Antaimôro, and the Antâmbahôaka, on the south-east coast, the Zâfiborâha on the north-east coast, and the Sâkalâva in the west, belong to a Semitic race, but the mass of the population is none the less of an Indonesian stock.

† M.M. de Froberville, Dable, Jorgensen, Max Leclerc, etc.

‡ Flacourt, preface to the *Histoire de Madagascar* (1658), p. v.

they occupied, according to tradition,* is at a very great distance from Imérina. As for Leguevel de Lacombe, on whose authority so much confidence has been placed (on very insufficient grounds, by the way), he relies, in a great measure, on the account of Flacourt, and, adopting M. de Froberville's† views, has attributed purely imaginary characteristics to the Vazimba.

In fact the only reliable information which can be found on the subject of the Vazimba in any writer up to the present day‡ is contained in the book in which Robert Drury relates his adventures; and the picture which he draws§ does not give any notion that they were of a negro race. The habit which they still had at that epoch of deforming the skulls of their infants in order to give them a pyramidal shape; their hair, less woolly than that of the inhabitants of the west coast; their ability to make pottery, glazing it inside and out; their skill in fishing both by line and net; and their custom of throwing away, at the commencement of their meals, small portions of food, one behind them for the spirits, and the others towards the four cardinal points, seem to indicate, on the contrary, a different origin. It is true that Drury says he did not understand the language which they spoke among themselves; but, on the other hand, the names of the ancient Vazimba chiefs, which tradition has preserved for us, are essentially Malagasy names, which show that the people governed by these chiefs used a language not at all different from that which is spoken at the present time all over the island.¶

It therefore seems to me that it will not be a superfluous task to give a sketch of the physical characteristics and habits of the Vazimba at the present day, the greater part of whom inhabit the valley of the Mânambôlo river, and whom I visited in 1869.

The Vazimba of Mènabè, according to their traditions, were originally from the west coast, from which they reached the

* This region, properly called Santsa, is indeed the most southern district of the Bára country; its boundary northwards is the river Rânôména, one of the principal affluents of the Mânánára. There is still a Bára tribe named Béhaisotra (lit. 'much *haisotra* or *hisotra*, a kind of rush) living on the banks of this river. Is not this tribe the same as that one of whom Flacourt speaks under the name of *Ontaysatrouîha* (lit. the inhabitants of *Haisotra*)?

† It was in fact in 1839 that Froberville published the *Mémoire* in which he identified the Ontaysatrouîha and the Vazimba; and the *Voyage à Madagascar* of Leguevel de Lacombe, whose agreement with Froberville's account is well known, was not published until the following year, 1840.

‡ M. Guillain says that he had seen the Vazimba, but he does not give any description of them.

§ The Vazimba of whom Drury speaks inhabited the neighbourhood of the river Mania or Tsijobôhana.

¶ The names of the Vazimba chiefs who ruled Imerina in ancient times were Andrianérinérina, Andriananjavônana, Andrianáhitrahitra, Andrianizinizina, Rasóalao, Rapêto, etc.; those of ancient chiefs who lived in Mènabè were Raléfotôkana, Rafôza, etc.

central highlands. Their first king is said to have been Ralè-fotòkana, who was succeeded by Rafòza, whose fame has been preserved through the intervening centuries. They were not, however, the sole inhabitants of the west of Madagascar before the conquest which they made towards the end of the 17th century, for the Sàkalàva chiefs of the family of Māroserànina, with the assistance of the Sangòro, the Antambỳ, and other clans of foreign extraction, all came from the south-east coast. There were also the Vèzo, the Mikèhana, the Sandangoàtsy (who are also, it appears, true Vazimba), the Antanàndro, etc., who were all *tòmpon-tàny*, i.e. "masters of the land" or lords of the soil, that is to say, aboriginal inhabitants and of the same stock. At the present time they are all mixed up together with their conquerors, under the common name of Sakalava.

The Vazimba have for long preserved the prejudice which is so strong and so general among all peoples, which prevents the mingling of the conquered race with the conquering one, and, until quite recently, they only married among themselves. They held the belief that those who allied themselves with families of foreign origin would lose their courage and their memory; and they told me that one of them, having, a little after the conquest, married the daughter of a chief of Maroseranina, was renounced by all his relatives.

The Vazimba are then like the majority of the other Malagasy tribes: some of them have long and frizzly hair (but not woolly), the face round and flattish, the lips somewhat large, the colour a deep brown, the nose large at the base (but not flat), the forehead high and straight; others, on the contrary, have the hair only wavy, the face oval, the colour reddish, the nose somewhat long, and the lips of the ordinary size. They dress their hair either in little knots, as in the interior of the island, or in balls, as is done by the Sakalava. They never file their teeth to make them pointed, and they never eat the corpses of their enemies, as certain writers have wrongfully accused them of doing.

Before the invasion of the Sakalava, they were unacquainted with the art of working in iron, and they had consequently neither spears nor knives; it was a clan known by the name of Antambỳ* who taught them this very useful industry. But they were accustomed to make pottery, and they were especially given to fishing in the rivers and little lakes, over which they sailed in their *molànga*, or very narrow canoes, which were hollowed out of small tree-trunks.† They cultivated manioc and bananas, but only a little rice. At that period they had,

* 'Antambỳ' signifies, in fact, 'men of iron,' i.e. blacksmiths (*vy*=iron).

† The Maroseranina kings have also imposed upon them, as tribute or *fànompàna*, the supplying them with fish and fresh-water turtles,

it appears, neither oxen, nor sheep, nor goats; these animals were only known to them a little time before the coming of the Maroseranina chiefs.

They believed, as do all the other Malagasy, in one God, Creator of the heaven and the earth; but, like them also, they addressed their prayers especially to the spirits of their ancestors or the *lolo*. They had many things *faly* or tabooed, and they killed or abandoned the children born on certain days supposed to be unlucky, especially on Sundays. They practised circumcision, but only, I am assured, since their submission to the Maroseranina chiefs. In order to gain the favour of God and their ancestors, they were accustomed, as indeed was the practice throughout the island, to perform a religious ceremony known by the name of *sòrona*, a kind of invocation, accompanied with the offering of incense (*émboka*) and of food. But the chief of the family, to whom was reserved the honour of offering the prayer, formerly used to turn towards the west; but at the present time, since they have possessed cattle, they turn towards the east. There is usually, to the east of the Vazimba houses, a little stage, formed of four stalks of reed, a little over a yard high, upon which they lay, in a wooden plate or a calabash, a little rice or other food, as an offering to God and the spirits of their ancestors, at every time that they have a prayer to address to them, or a vow to fulfil. As soon as the prayer is finished—prayer offered on their knees—they squat on their heels, and holding the hands opened, with the palms turned upwards, they throw a little of the rice towards the east, and eat the remainder.

Marriages are always made without any ceremony; sometimes prayers were addressed to Heaven asking for children.

Amongst the Vazimba succession to the chieftaincy, etc., was not direct, but collateral. A little time before my journey through the valley of the Manambolo, their *màsoandro* ('sun') or great chief, Lemby,* was dead; and he was succeeded, not by his son Karijy, but by one of his brothers.

The Sakalava conquest also produced great changes in the habits and daily life of the western peoples of Madagascar. In fact, before the arrival of these strangers, they went nearly naked, they had no slaves, they were unacquainted with supposed Divine judgments through the *tangèna*, or by the hot-iron ordeal; and the custom of the *hàzomanitra*† was only adopted after the introduction of oxen into the country.

* Lemby lived on the shores of the lake Bêfôtaka, which is situated at a little distance from the right bank of the Manambolo, with which it communicates by a channel called Ankinga.

† The *hàzomanitra* is a stake smeared with the blood of a victim, which is set up in the eastern part of the house of the chief of a family, in order to keep in memory any important event, such as a marriage, a birth, etc.

One of the most remarkable points in the customs of the Vazimba is the way in which they act before the interment of the dead. They wash the corpse with care, dressing it in a handsome *lamba*, and then seat it on a *kibàna*, a sort of bedstead; two friends of the deceased squat on either side to bear it company, talking to it, putting at intervals into its hand a spoonful of rice or other food; and when they are fatigued, others take their place. This watching lasts from three to four days. When putrefaction is far advanced and the stench becomes too unbearable, they inter the corpse temporarily in some place or other. Twelve or fifteen months afterwards they open the coffin, from which they take the bones, which are carefully washed and cleaned; these are then placed in another coffin, which is carried with great ceremony to the family burying-ground.*

In reascending the Manambolo, I found, on the 19th June, 1869, upon an immense sand-bank in the middle of that river, a score of little conical huts of about two yards in height, made of branches and twigs, and occupied by some Vazimba who had come there to perform this pious duty to the remains of their fathers. To the west of their camp was a covered stage, about two to three feet high, under which the bones were under cover and put out to dry. Upon a *tàlantàlana*, or little framework fixed by the side of the stage, were placed offerings of *tòaka* (native rum) and of food for the spirits of the dead. In former times, before the Sakalava conquest, instead of burying the dead some days after their decease, the Vazimba watched them for several weeks; and they carefully collected in calabashes the liquid matter resulting from the decomposition of the flesh, and then poured it out in a special place, where they made a *sòrona*, or prayer, accompanied with offerings. Since they have possessed cattle, they have been accustomed to sacrifice some in memory of the dead; and they shed the blood of the victims over a hollow place, where they place the putrid liquid, thinking thus to give agreeable nourishment to a serpent which they believe comes into existence from these human remains. This ceremony, so utterly strange and disgusting, which was performed at the death of all the Vazimba, as also of the Antanàandro, the Betsileo,† and many other Malagasy tribes, has fallen in some measure into disuse since the coming of the Maroseranina chiefs.

It follows from all that I have seen and learned, from their

* Up to a very recent time they used, in funeral ceremonies, the big drum called *kazolàky*; but the last king of Ménabè, Tôvonkéry, prohibited its use. It appears that it was the Sakalava king Andriàmbaninina from whom they borrowed the custom (Andrianinina is the *filahiana*, or name given after death; it signifies the 'Prince regretted.')

† Among the Betsileo the corpse was (and is) placed standing, not sitting.

physical appearance, their customs, their language, and their traditions, that the Vazimba belong to that great Malagasy stock whose Indonesian origin appears to me to be indisputable; and that, if we may consider them as inhabitants of the island from a very ancient period, there is not any reason to suppose that they came to Madagascar before the Bètsilèo—with whom they have much in common—or the Bàra and the numerous tribes which occupy the east and west coasts, and who, since submitting to chiefs of a different nationality, have been known by the general names of Bètsimisaraka, Sakalava, etc.

Further, it does not appear to me doubtful that the Hova, or actual inhabitants of the central province of Madagascar, are a mixture of the Malays and the Vazimba, with a predominance of the latter element. It is, in fact, more especially among certain *andriana* or noble clans, who are the descendants of the conquerors, that one discovers the most characteristic traits of that Malayan race which came and mastered the Indonesian one at a comparatively recent period, probably not more than eight or ten centuries ago at most. The Indonesians, who also came from the same parts of the world, were, on the contrary, immigrants into the island at a much more remote epoch and by repeated instalments.*

The Hova traditions, which reach back to the latter half of the 16th century, inform us just as clearly that the mass of the population of Imerina was of Vazimba stock. They have indeed preserved for us the remembrance of the wars which the Vazimba had to wage with the immigrants of Malayan origin, and which, having lasted for nearly a century, were terminated, towards the year 1600, by the flight of some of their principal families and by the submission of the others; and they have transmitted to us the names of the two last of their kings who reigned in Imerina, Rasóalao and Rapèto. Conquered by Ralàmbo, these kings fled with some of their subjects towards the west of Lake Itàsy, finally abandoning to the power of the newcomers the great plain of Bètsimitatatra and all its immediate neighbourhood. Twenty years later, Andrianjàka, son of Ralambo, fixed his residence at Alamànga, which, at that epoch had only been inhabited by the Vazimba, placing in their midst a garrison of a thousand men, from which came its present name of Antanànarivo (lit. 'where are a thousand arms,' i.e., a thousand warriors).†

* Besides these two elements, Indonesian and Malayan, which form the bulk of the Hova population, there is a third, a negro element, which must not be overlooked, and which is due to the large number of slaves brought from Eastern Africa, especially during the past century.

† [This is certainly an erroneous explanation. There can be no doubt that 'Antanànarivo' means 'At the town (*tanàna*, not *tàna*, hand or arm) of a thousand,' that is, soldiers. See ANNUAL X., p. 251 --EDS.]

I will not here enlarge upon the veneration and superstitious fear which the Hova have always manifested for the *vatom-bazimba*, the supposed tombs of the Vazimba, or stones which have been dedicated to their memory. Up to quite recent times, all through Imerina and even among the Betsileo, the people attributed to the Vazimba the greater part of the diseases and other misfortunes which befell them. In order to appease their anger, they addressed prayers to them, as well as to the spirits of the ancestors, in proportion to the veneration in which they held them. Should an inhabitant of the central province fall ill, he believed that it was because he had inadvertently trodden upon a Vazimba grave and so was possessed (for evil) by the offended spirit; and so, in proportion to the severity of his illness, he killed an ox, a sheep, or a fowl, fixing the head and the feet of the victim on a pole, and anointing the stone or *vatom-bazimba* with the fat. As for the flesh, he ate that together with his family. They also offered similar sacrifices in order to obtain protection, to bear many children, to gain wealth, to make prosperous journeys, to come back safe and sound from a war, etc. But this veneration, this superstitious fear, it does not appear to me, as some authors have thought, should be attributed to the remorse of the conquerors for their extermination of the vanquished; for there is no doubt, according to the same Hova traditions, that the Malayan invaders, who were intelligent, disciplined, and comparatively better armed than the others, easily, if not immediately, yet eventually, and, so to speak, without striking a decisive blow, imposed their yoke upon the inhabitants of Imerina. And besides, to attribute to barbarians, especially to Malays, any remorse arising from such a cause, is to completely ignore their moral and mental characteristics. The respect paid to the tombs of the Vazimba simply arises from the fact that the mass of the population of Central Madagascar is composed of their descendants, more or less mingled with those of their conquerors.

Translated from the French of*

ALFRED GRANDIDIER

By JAMES SIBREE (ED.).

* From *Mém. Centen. Soc. Philomathique*, 1888, pp. 155-161.

RECENT RESEARCHES IN MADAGASCARIAN PALÆONTOLOGY:

GLIMPSSES OF THE EARLIER ANIMAL LIFE OF THE ISLAND.

DURING the last two or three years considerable advances have been made in our knowledge of the extinct fauna of Madagascar; and, thanks to the researches of several collectors, many new facts have come to light with regard to the great struthious birds, the diminutive insular Hippopotamus, an older and larger form of Lemuroid, some gigantic Chelonians, and a Crocodile of the Secondary period, as well as other ancient forms of vertebrate life, now only known by their fossil remains.

In our last Number a full description was given of portions of an extinct Crocodile discovered by the Rev. R. Baron in the north-west of the island;* and in our "Natural History Notes," the Rev. T. G. Rosaas described the results of his researches for some time past in the calcareous deposits of Antsirabè.† Owing to the kindness of Dr. C. I. Forsyth Major and M. Alfred Grandidier, we are in possession of three monographs, one from the *Philosophical Transactions* of the Royal Society, another from the *Comptes Rendus* of the Académie des Sciences, and a third from the *Annales des Sciences Naturelles*; so that we are able to present the substance of these papers in the following pages. The first of these is a translation of an article by M.M. Milne-Edwards and Grandidier, "Observations sur l'Épyornis de Madagascar;" the second in an epitome of Dr. Forsyth Major's memoir, "*Megaladapis madagascariensis*, an Extinct Gigantic Lemuroid from Madagascar," but taken from an article in the *Scientific American Supplement* (April 7, 1894); while the third paper consists of extracts from an article by M.M. Grandidier and Filhot, entitled "Observations relatives aux Ossements d'Hippopotames trouvés dans le Marais d'Ambolisàtra à Madagascar." (In the two latter papers a large proportion of the text, especially in the last one, is occupied by descriptions of so technical a character that they would be of little interest except to a comparative anatomist.) We also reprint, as a fourth paper, an article by Mr. C. Davies Sherborn, F.G.S., on "Recent Researches on the Flora and Fauna of Madagascar" from *Natural Science*; for, although this touches slightly on some of the subjects already treated much more fully in the preceding papers, it is valuable as giving in a concise form a sketch of recent research in other divisions of the animal life of Madagascar, and also treats of the flora as well as the fauna of the island.—J.S. (ED.)

NO. I.—THE MEGALADAPIS, AN EXTINCT GIGANTIC LEMUROID RECENTLY DISCOVERED IN MADAGASCAR.

THE great African island of Madagascar, the area of which exceeds that of Italy, is, like Australia, a true continent, or rather, the remains of one, very distinct in its fauna from Africa, of which it is so close a neighbour from a geographical point of view. This fauna is especially characterized by the presence of numerous Lemuridæ, quadrumanous Mammals, which here replace the true Monkeys, which are so numerous in Africa. We find, indeed, a few Lemuroids in Africa and in Malaysia, but they seem to be isolated there, and as if lost in the midst of a fauna of an entirely different character. In Madagascar, on the contrary, they

* ANNUAL XVII., pp. 26-28. † *Ibid.* pp. 111-114.

form two-thirds of the mammiferous population, and it cannot be doubted that they are there located in their true country.

We find also in this island a very curious Cat, the *Cryptoprocta*, which is a plantigrade, while all the other Cats distributed throughout the entire world, with the exception of Australia, are digitigrades.

Further, Madagascar is destitute of indigenous Ruminants.

These zoological peculiarities give this island a feature of oddness almost as great as that which distinguishes Australia. In order to find a fauna comparable with that of this island, we must go back to the ancient geological ages and examine the fossils that characterize them. We find, then, not without surprise, that in Eocene and Miocene times, that is to say, at the beginning of the great Tertiary period, animals similar to those that still live in Madagascar stocked the forests of the country now called France. The Carnivore, whose remains are found in the Eocene of Quercy and the Miocene of Saint Gerard-le-Puy, and which Dr. Filhol has named *Proailurus*, scarcely differs from the *Cryptoprocta* of Madagascar. So, too, the small Mammals that existed at the same epoch in France, and whose bones have been described under the names of *Adapis* and *Necrolemur*, were tree-inhabiting Quadrumana very nearly akin to the lemurs of Madagascar, in a word, true Lemuroids. Such approximation is not one of the least surprises that science has prepared for us. Thus Madagascar has, up to the present epoch, preserved an Eocene fauna, just as Australia still possesses a Cretaceous, that is to say, a Secondary one.

From what has just been said, it will be seen how interesting it would be to know the geological faunas that preceded that which still exists in Madagascar. These ancient faunas, however, are almost entirely unknown to us, despite a few isolated discoveries well calculated to excite the zeal of palæontologists.

In 1851, that is to say, more than forty years ago, there were discovered in some relatively recent strata in Madagascar some eggs of huge size (of a capacity of two gallons), along with the bones of a bird that must have laid them, and which Geoffroy Saint-Hilaire designated by the name of *Æpyornis maximus*. It was a struthious bird, between six and seven feet in height, the most massive of all known birds, since in this respect it exceeded the *Dinornis*, which was more slender. In the same strata were discovered, later on, the remains of a Hippopotamus (*Hippopotamus Lemerlei*) different from those that exist in Africa. This is about all that we then knew concerning the ancient fauna of Madagascar. A long interval had to elapse before any new discoveries were made. Very recently, however, these palæontological researches have been resumed with new ardour, and this time with more encouraging results. The fossil remains that are found, especially in the ancient and partially dried marshes that abound in certain parts of Madagascar, are very abundant, and it seems as if the study of them ought to throw an entirely new light upon the ancient fauna of the great island of the Indian Ocean.

The most remarkable of such remains is the nearly complete cranium of a large Lemuroid of an extinct species, which Dr. Forsyth Major, the well known palæontologist, has described under the name of *Megaladapis madagascariensis*.

As is well known, the Lemuridæ that now inhabit Madagascar are all small or of medium size. The largest of them, the Short-tailed Indris (*Indris brevicaudatus*), attains scarcely three feet in height when it stands upright upon its hind feet. Its skull is no larger than that of a Fox.

The *Megaladapis* was three times larger, thus giving this great Lemuroid the stature of the Orang-outang or Gorilla, but with a very different aspect and very different proportions, according to all appearances.

The skull of the *Megaladapis* is 8 inches in length, and, as the anterior part is broken, it will be seen that the head of the living animal must have exceeded that length. The width at the orbits is $4\frac{1}{2}$ inches. The last upper molar is more than $\frac{7}{10}$ of an inch in its greatest diameter, and the corresponding lower molar, which is greatly elongated, is more than an inch in diameter. The teeth are stronger than those of Man and comparable to those of the Gorilla.

The Lemuridæ of the present epoch are characterized by their orbital frame forming a complete circle in front, although the cavity of the orbit communicates widely behind with the temporal fossa, this distinguishing them from the Monkeys, in which this communication is closed, as in Man, by the consolidation of the frontal bone with the sphenoid and malar bones. Besides, the lachrymal duct is situated outside of the orbit, and not within, as in Man and the Monkeys. Notwithstanding the elongation of the muzzle, the dentition is quite similar to that of the American Monkeys, but the lower incisors point outwardly and are sometimes reduced to two, as in the Indris. The dentition, moreover, varies much from one genus to another, and the adult, through the effect of age, often loses one or more pairs of teeth that are present in the young, so that the dental formula of the latter is always more normal than that of the adult.

The *Megaladapis* presents the cranial and dental character of the Lemuridæ, but modified in a very special manner, and of which no example is known among the living species.

What strikes us at first sight, when this skull is examined alongside of that of other Lemuridæ, is the narrowness of the cerebral case, which seems out of proportion with the elongation of the facial region, and the strength and heaviness of the jaws. The present Lemuridæ have, indeed, an elongated muzzle (like that of a Fox), but their skull is always much more rounded and inflated behind than that of the *Megaladapis*. The cerebral cavity of the latter is no more than three inches in length, so that the brain of this large Lemuroid was no larger than a hen's egg. This is the ordinary size of the brain of the Indris, whose skull is three times shorter. Now it appears that the Indris possesses only quite a moderate amount of intelligence. If we admit that the intelligence is always proportionate to the development of the brain, we may conclude therefrom that the *Megaladapis* was a pretty stupid animal. On the contrary, it must have possessed great muscular strength. The skull that we have before us must have afforded an attachment to powerful muscles. The sagittal crest that occupies the summit of it, the very large zygomatic apophyses, the deep temporal fossa, and the size of the teeth are an evident proof of this. In its entirety, this skull recalls that of the large Monkeys, such as the Baboon,

the Chacma, and the Mandrill, the stature of which approaches that of the Anthropoids, and which have also a greatly elongated head and a huge jaw, which has given them the name of *Cynocephali*, or Dog-headed Monkeys. The *Megaladapis* was a cynocephalous or dog-headed Lemuroid, at least at the adult age, for, like the Monkeys, the young must have had a more rounded skull and borne more resemblance to the other Lemuroids. The orbits of the *Megaladapis* are remarkable by their form, being quite different from that of the Lemurs. The latter, almost all nocturnal, have very wide orbits directed outwardly, almost touching upon the median line. Here, on the contrary, the orbits are very wide apart and lateral, or directed obliquely—forming a sort of funnel—an arrangement found again, up to a certain point, in the Indris. The eyes of *Megaladapis*, instead of being large and prominent, as in the present Lemuridæ, must have been sunken and protected by the orbital frame, a conformation which indicates habits less truly nocturnal than those of the present Lemuroids.

The teeth of the upper jaw (the three premolar and three posterior molars) all have three tubercles, two external and one internal, but it is easy to see that this latter is formed by the fusion of two tubercles. This, however, is quite common in the Lemuroids, some of which have molars with four tubercles, as the Indris; while others, and particularly certain species of small size (of the genera *Lepilemur* and *Cheirogaleus*), have but three. As in these small species, the *Megaladapis* presents a last molar as strong as the one next to the last, while the posterior tooth is notably reduced in the Indris and the Lemurs properly so called. The lower molars are of the ordinary four-tubercled type, except the last, which has five tubercles and is much elongated in consequence of the presence of this fifth tubercle, forming a spur. This lower posterior molar, elongated and with five tubercles, is observed in the *Lepilemur* and in the fossil *Adapis*. It exists also in the cynocephalous Monkeys, in the *Oreopithecus*, a large Monkey of the Tertiary of Italy, and is found again in the omnivorous Ungulates of the group of Hogs.

The front teeth are wanting in the upper and lower jaw, and are fractured at the point of insertion of the canines. From an examination of what remains, it is probable that these canines were of middling size, as in most of the Lemuroids. The form of the symphysis of the lower jaw, which is very high and very strong, proves that the lower canines and incisors were almost straight, and not slanting, like those of the Indris and other Lemuroids.

The *Megaladapis* presents several points of resemblance with the *Adapis* of the Tertiary of France, particularly with the *Adapis magnus*. Such are the presence of a sagittal crest, and the form of the orbits, and that of the teeth of the lower jaw, etc.

This type undoubtedly belongs to the order of Lemuroids, but, with Dr. Forsyth, we think that it ought to constitute a family apart, akin to but distinct from that of the present Lemuroids. In every respect it is a very specialized type, which, after it has become better known, will doubtless form a new link connecting the Lemuroids with the Ungulates. We know that M. Milne-Edwards has shown that the Lemurs, by their internal organization, are closely related to the Suidæ,

and we may recall the fact that Cuvier described the *Adapis* as a small Ungulate akin to the Daman. It is not impossible that the *Megaladapis* was a Lemuroid on the way to a transformation toward the type of the Ungulates, in the same way as the Aye-aye or *Cheiromys* is a Lemuroid which is becoming transformed under our eyes into a Rodent.

The skull of the *Megaladapis* came from the same marsh of Ambolisatra in which, not long ago, were found the remains of the *Epyornis* and Hippopotamus, of which we have already spoken. The geological strata are of recent origin, for we find therein the bones of the domestic Ox introduced into Madagascar by man. All the bones have that modern aspect which palæontologists characterize by saying that they are subfossil, and several exhibit traces of the hand of man.

The *Megaladapis* has, however, a well-marked Tertiary aspect, and this is the first time that a fossil Mammal so different from all the Mammals now living has been found in Madagascar. We can scarcely doubt, however, that this large Lemuroid lived at a relatively recent epoch, and was hunted and eaten by the first men who introduced the domestic Ox into Madagascar.

What gives much weight to this opinion is the following passage from Flacourt, the first historian of the great African island, and which seems to refer to the *Megaladapis*, or to some large Lemuroid closely related to it :—

“The Tretretrete, or Tratratrata, is an animal as large as a two-year-old calf, and which has a round head and a man’s face; the fore-feet like those of a Monkey, and the hind ones also. It has curled hair, a short tail, and ears like those of a man. It resembles the Tanache described by Ambroise Paré. It has been seen near Lake Lipomani, in the vicinity of which is its lair. It is a very solitary animal, which the people of the country hold in great fear and run away from, as it also does from them.”

With the exception of the round head and the size, which is doubtless exaggerated, this description by Flacourt applies to the *Megaladapis* very well. If we reflect, moreover, that the head of the living animal must have been covered with one of those shocks of curled hair which, in the present Lemuroids, greatly increases the volume of it behind the ears, it will be agreed that there exists at least a singular coincidence between this description and the discovery recently made in Madagascar. The data given by Flacourt as to the fauna of the island are, as a general thing, very accurate, and most of the animals that he describes have been found by the naturalists who have succeeded him. It is therefore permissible to believe that rare survivors of this large species of Lemuroid were still living, “very solitary,” as he says, at the epoch of his sojourn in Madagascar, that is to say, in the middle of the seventeenth century.

However this may be, an examination of the skull of the *Megaladapis* permits of representing the latter as a Lemuroid of a size comparable to that of a Mandrill and, like the latter and the Indris, destitute of a tail. Like the cynocephalous Monkeys, it must have inhabited mountainous and rocky districts and have oftener remained upon the ground than on trees. It ascended the latter only to obtain its food, which must have consisted of small birds, leaves, and fruit. Its strength must

have been very great, and when it was attacked, its teeth and its robust arms must have rendered it formidable to man himself. But its intelligence was of a low order, so that it was easily exterminated by the population (probably of Malaysian origin) that colonized Madagascar, and that seized every opportunity of killing it with spears in order to feed upon its flesh. We can wait to soon possess new data in regard to this large Lemuroid and to the other Mammals, now extinct, that constituted the Tertiary fauna of Madagascar. Among the bones recently sent from this island to the Museum of Paris, and a description of which will be given by M. Milne-Edwards, there is a humerus that might well have belonged to the *Megaladapis*.

Translation from the French of E. TROUESSART, in La Nature, in the Supplement of the Scientific American, April, 1894.

NO. II.—OBSERVATIONS ON THE ÆPYORNIS OF MADAGASCAR.

THE discoveries which have been recently made in Madagascar supply us with fresh information on the history of the *Æpyornis*. The first facts which were available relative to these gigantic birds date from 1851; these were given by I. Geoffroy Saint-Hilaire, who made known the eggs and some fragments of bone found in the south of the island, near the port of Māsikōro (Machicora). His examination of these remains led that learned zoologist to class the *Æpyornis* among the Brevipennes; but his opinion did not convince all minds, for Valenciennes, far from admitting the relationship proposed by Saint-Hilaire, considered the *Æpyornis* as a kind of Penguin, while Bianconi rather saw in it a large species belonging to the Raptores, and possibly the original of the 'Roc,' of which Marco Polo speaks.

One of us (M. Grandidier), during his explorations in Madagascar, made excavations in some marshy ground on the west coast, at Ambôlisaîtra, and he there discovered several bones of the same bird, which were the subject of a paper published in 1869, and in which we showed that the *Æpyornis* constitutes, among the Brevipennes, a type characterized by massive formation of bone and by its enormous legs and feet. We also pointed out that the bones at Ambolisatra came from three distinct species: *Æpyornis maximus*, *Æ. medius*, and *Æ. modestus*.

New materials for study have now reached us, which have been obtained at various places in Madagascar. The most important collection has been made in the very centre of the island, at Antsirabê,* by the late M. Georges Muller, and was sent to the Museum of Natural History before his departure for the north. It was during this last expedition that he was assassinated on his way to Mojangâ by a band of Sâkalâva brigands. He left his work unfinished, but he had already rendered important services to science, and had his course not been cut short by

* Antsirabê is a town situated sixty-five miles S.S.W. of Antananarivo, and is about 4600 feet above the sea-level. The plain in the midst of which it is situated, like all those which exist in the interior highlands, was formerly the bed of a lake. Close to Antsirabê there are several hot springs, highly charged with calcareous substances, with a temperature of 98° and 114° Fahr.; these have deposited a thick stratum of lime, which is worked by a number of Malagasy convicts in order to supply the mortar used for the principal buildings of the Capital. The Rev. T. G. Rosaas, a Norwegian missionary who has for several years been settled at Antsirabê, exerted himself with great courtesy in assisting M. Muller's researches.

death, his name would have taken a place by the side of the most meritorious explorers.

Other bones have been obtained by the exertions of M. Samat, a merchant at Môrondava; these were collected in the south-west.

Lastly, M. Grevé has discovered on the west coast, between Bêlo and Môrondava, some new fossiliferous deposits; and he has procured for the Museum fine portions of the skeletons of the *Æpyornis*. Such are the materials from which we have been able to make a more complete study of the extinct birds of Madagascar, and to determine that they belong to many different species.

These various kinds of *Æpyornis* constitute a family, represented by very differing forms. At the present time at least a dozen can be distinguished, some of large size, and others of moderate dimensions. The former had a height of about ten feet, while others hardly exceeded that of a Bustard. Their anatomical characters justify their being arranged in two genera: (1) that of *Æpyornis*, with large and massive legs; and (2) that of *Mullerornis*,* with slenderer legs and feet, and which much resembled in their proportions the Cassowary of New Guinea and the Apteryx of New Zealand.

One might have supposed that the slight differences in the dimensions and the proportions of the various parts of the skeletons found should be ascribed to sexual characteristics, the larger bones belonging to the male birds, and the smaller ones to the females. But such a supposition is not verified by the facts, as any one may easily prove by examining the series of thigh-bones sent by M. Muller. These are sixty in number, collected from the same locality, and of which about thirty prove to belong to adult males. These latter are very nearly of equal size and similar proportions; and it cannot be admitted that in such a considerable series, where all ages are represented, one would only meet with individuals of the same sex. We may then conclude that the males and the females were similar in size, and that if this is the case with one species of *Æpyornis*, it was probably the same with the others. The differences in dimensions therefore indicate specific differences.

GENUS *ÆPYORNIS*.—The largest of all the species of this bird, which we shall call *Æ. ingens*, forms part of the Grevé collection. It greatly exceeds in size the *Æ. maximus*. The massive and short femur is especially remarkable for the size of the diaphyse, recalling, in a very exaggerated fashion, the characteristics which we have pointed out in the species we are about to name, and differing from the same bone in the *Æ. Titan* described by Mr. Andrews. The tibia is of extraordinary strength, and the feet-bones are remarkably enlarged in the articulated portions.

Numerous bones of the *Æ. Titan* (Andrews) have been sent to us from the west coast by M. Grevé, and from the south by M. Samat; these indicate a species as tall, but less massive, and with more slender joints. The *Æ. maximus* (Saint-Hilaire) is markedly smaller than the two species just named, and approaches nearer to the proportions of *Æ. ingens* than to those of *Æ. Titan*. *Æ. medius* and *Æ. modestus* ought, in a

* We propose this name in order to keep in remembrance M. Muller, who was the first to make us acquainted with these species.

zoological classification, to take their place by the side of the species described by Saint-Hilaire, but they are less in size.

Two other species of large dimensions are easy to distinguish by the characters of the feet-bones; one of these, *Æpyornis cursor*, is nearly equal to *Æ. maximus*, but it is more slender. The other, *Æ. lentus*, is remarkable for its short and massive feet.

The new species which we owe to the researches of M. Muller, and which we shall name *Æ. Mulleri*, is smaller; it, however, is of larger dimensions than *Æ. Hildebrandti*, described by M. Burckhardt, and coming also from Antsirabe. We possess almost the entire skeleton of this bird: the cranium, the lower jaw, the vertebræ, the side-bones, the sternum and its appendages, a part of the pelvis, the feet-bones, and some phalanges, so that we are able to understand very exactly the affinities of this species.

The head was less flat than that of the *Dinornis* and also longer and narrower; and the brain was more bulky. The occipital articulated condyle is strongly pedunculated. The fossa temporalia are deep, but narrow. The basi-sphenoid carries on each side a well-marked pterygoidian apophyse. The lower jaw is straight and stout, somewhat recalling by its form that of the Rheas of South America, but the maxillary branches are higher and stouter. The symphysal portion is long, compressed, and hollowed in the form of a spoon. The sternum shows many affinities with that of the Apteryx; the plastron is slender, flattened and much enlarged; the articulated coracoidian surfaces are arranged as in the New Zealand genus. The coraco-scapulars are weak and bear a very faint articulated impress, showing the presence of a rudimentary arm-bone. The feet, all of whose proportions can be recognized, resemble those of *Æ. Titan*.

GENUS MULLERORNIS.—These birds, which are of medium size, do not present the clumsy and massive appearance of the *Æpyornis*; they rather approach that of the Cassowaries. We are still only acquainted with some of the leg-bones, but these portions enable us already to distinguish three different species.

The *Mullerornis Betsilei* lived in the centre of the island, side by side with *Æpyornis Mulleri*, but was much less abundant. The thigh-bone is slender; while the foot-bones are not so enlarged as those of the preceding genus, and a section of the diaphyse presents the form almost of an isosceles triangle.

The *Mullerornis agilis* inhabited the south-west coast; of this species we only have a tibia, very remarkable for the distinct manner in which the attachments for tendons and muscles are marked. The external edge of the bone, below the inferior articulation, is developed into a particularly prominent crest.

The third species, or *Mullerornis rudis*, was found by M. Grevé in the deposits of the west coast. The tibia is very nearly of the same length as that of *Mullerornis Betsilei*, but it is more massive. The tarso-metatarsian is remarkable for the enlargement of the inferior extremity, of which the digital joints are very large. Between the middle and outside toes is a hollow for the passage of the tendon of the adductor muscle of the outside digit, a hollow which does not occur in the *Æpyornis*.

The conditions under which the remains of these birds have been depos-

ited seem to show that these *Æpiornithes* and *Mullerornithes* frequented the margins of sheets of water, and that, if they did not swim there, they kept in the midst of the rushes bordering the lakes and the rivers. In fact, wherever they have been obtained, their bones are associated with those of small Hippopotami, Crocodiles, and Tortoises, that is to say, with animals altogether aquatic in their habits. The *Æpyornithes* must usually have lived in low-lying and frequently inundated plains; and there also they nested, as we may infer from the number of portions of the skeletons of very young birds which have been found there in abundance.

We may add that we have been able to recognize, amongst the bones from Antsirabe, some portions which belonged to a large Rail, nearly related to *Aphanapteryx*, and others of an Anseride bird much larger than those which now inhabit Madagascar; these again showing the presence of extinct birds of aquatic habits, belonging to the same period as the *Æpyornis*, and living under similar conditions.

These large birds were certainly contemporaneous with Man, for there are to be seen, on some of their bones, some deep and very sharply distinct notches, which were made by cutting instruments, probably in removing the flesh. On the femur of a Hippopotamus, of the same date, is also to be seen a hollow cut, going through the entire thickness of the bone and evidently produced by human hands.

These discoveries doubtless give promise of others still more important yet to be made, which will throw some light upon the early history of Madagascar. It is impossible not to be struck with the analogies which the fauna of this island presents with that of New Zealand, where, at a recent period, there lived a large number of gigantic birds, the *Di-nornithes*, represented by more than twenty species. These resemblances seem to indicate some former connection between these islands, now separated by an immense extent of ocean; and this conclusion appears to agree with observations made with regard to the ancient fauna of the Mascarene group of islands.

Translated from the French (Comptes rendus, t. cxviii.) of

ALFRED GRANDIDIER,

By JAMES SIBREE (ED.).

As an appendix to the preceding paper, it will be useful to give herewith the following notice and criticism of it in an English scientific magazine; from which it will be seen that some English naturalists are not yet quite prepared to accept all the conclusions which MM. Milne Edwards and Grandidier have come to as regards the classification of *Æpyornis*. In the following number of the same magazine, however, a protest was entered against the former article, which we also give. — EDS.

“*ÆPYORNIS*.—Knowledge of yet another group of extinct monsters is rapidly progressing. Recent researches in Madagascar, of some of which we gave an account in *Natural Science*, vol. iii., p. 192, have brought to light many remains of the *Æpyornis*, a bird which some suppose to have suggested the ‘Roc’ of Sindbad the Sailor. Some of these remains have found their way to the British Museum and have been described by Mr. Charles W. Andrews (*Geol. Mag.*, Jan., 1894). Others have reached Paris and fallen into the hands of Messrs. Milne-

Edwards and Grandidier, who, apparently stimulated by the paper of Mr. Andrews, have published an all too brief account in *Comptes rendus* for January 15.

"Names are here given to no less than four new species, but, though some measurements are published, we have sought in vain for any adequate diagnosis. Moreover, a new genus, *Mullerornis*, is proposed for three new species of more slender form than those referred to *Æpyornis*, but of this 'genus' no further definition is attempted. It also appears that no particular bone is taken as the type specimen, but that names are applied to collections of limb-bones which may or may not belong to the same species. If this kind of thing continues, the confusion of nomenclature in the *Æpyornithidæ* will soon put into the shade that already obtaining in the *Dinornithidæ*. Our only remedy is to refuse recognition to all such undescribed 'species.' There is, however, much of interest in this paper, as it gives, for the first time, a description, though a short one, of the skulls, sternum, and coraco-scapula. The skull is said to be less depressed, longer, and narrower than that of *Dinornis*; the temporal fossæ are deep and narrow, while the basi-sphenoid bears strong basi-ptyergoid processes, as in other Ratite birds. The mandible is straight and strong, with a long compressed symphysis, hollowed like a spoon. The sternum much resembles that of *Apteryx*, being a thin, broad, flat plate, with grooves for the coracoids like those of that bird. The coraco-scapula is much reduced and bears a slight depression for the articulation of a rudimentary humerus. It is to be hoped that we shall not have to wait so long as usual for figures and full descriptions of these important specimens. Meanwhile it is more clear than ever that, if *Æpyornis* really is the Roc, then it was Sindbad's imagination and not the bird that flew away with him."—*Natural Science*, March, 1894; p. 176.

"PROFESSOR MILNE-EDWARDS, M. GRANDIDIER, AND ÆPYORNIS.—I venture to think a protest ought to be raised by some British naturalist against the tone of the note in this month's *Natural Science* on the recent French discovery of *Æpyornis* bones. For many years there has been a generous rivalry, fruitful of enterprise and hard work, between the French and ourselves in the matter of Mascarene zoological discovery. When then, as in the case referred to in your article, the French have succeeded in first making known to the world a set of new and interesting fossils, it ill becomes a British Journal of the standing of *Natural Science* to complain in so cavalier a manner of the exact method in which the discovery is announced.

"Were the complaints correct in themselves, there would still be little excuse for such an attack, but, as a matter of fact, the only alleged fault of the authors which, if true, would have caused difficulty to the real worker on specimens, as opposed to the mere critic, practically does not exist at all in the paper referred to. Far from its being the case that 'names are applied to collections of limb-bones which may or may not belong to the same species, and no particular bone is taken as the type specimen,' the species are distinguished mainly on size, and in four cases out of seven one bone only, either tibia or tarso-metatarsus, has

its dimensions fully and exactly recorded, and is therefore clearly in each case the type of the species. Of the other three cases, one was founded on these two bones together, and the other two on the two chief leg-bones, which may have been found in conjunction, and are in all cases most carefully measured. In a group where size is of the most vital and diagnostic importance, to dismiss these measurements with the remark that 'though some measurements are published, we have sought in vain for any adequate diagnosis' is surely rather disingenuous.

"Considering the fact that one of the authors attacked, Professor A. Milne-Edwards, holds the highest position in the French zoological world, is a naturalist of whom any nation might be proud, and one to whom many British zoologists, especially those of our National Museum, have been again and again indebted for assistance in various ways, while the other, Mons. Grandidier, simply as a private person, has spent a fortune and a lifetime in furtherance of the scientific knowledge of Madagascar, it would surely have been better had *Natural Science* recognised in a somewhat different way the magnificent work done by the two eminent Frenchmen it now, not for the first time, so gratuitously attacks.

"Natural History Museum.

O.T."

"March 5, 1894.

"[Mr. Thomas seems to believe that some personal animus has influenced our remarks on the work done by MM. Milne-Edwards and Grandidier on the *Epyornithidae*. Let us at once assure him that none more than ourselves have greater respect for the personality of these eminent Frenchmen. It is the principles, not the men, that we attack; and in reply to the second paragraph of Mr. Thomas's letter we have to say:—That in three cases (*Æ. mulleri*, *ingens*, and *betsilei*) specific names are given to a collection of bones, or more than one bone, and since it is not definitely stated that they belong to the same skeleton, it must not be assumed that they do. The inconvenience resulting from this mode of procedure is apparent; for, in the case of *Æ. ingens*, measurements are given of the femur, tibio-tarsus, and metatarsus. Now it is stated that the femur is different from that of *Æ. tilan* described by Andrews. On referring to the paper quoted, we find that the femur of *Æ. tilan* is not described, though a femur is provisionally referred to that species. On the other hand, the femur referred to *Æ. ingens* by Milne-Edwards may well have belonged to *Æ. tilan*; and, indeed, if the bones referred to *ingens* were associated, then, as far as one can judge from measurements, *ingens* is a synonym of *tilan*; for the measurements of the tibia of *ingens* given by Milne-Edwards agree almost exactly with those of the type tibia of *tilan*:—

	<i>ingens.</i>	<i>tilan.</i>
Length	81 cm.	80 cm.
Circumference at narrowest....	20.5 „	20.7 „

"It is true that the authors state that *Æ. tilan*, though as tall as *Æ. ingens*, was less massive, and its leg articulations were smaller. If this opinion is founded on the femur, we have shown that it rests on an insecure foundation. If it rests on the tibia, why are no measurements

given of the articular ends in which the main difference seems to lie? Slight variations of measurement are of small value and insufficient for the establishment of specific distinctions, for among individuals in the Ratite birds size varies very greatly.

"Of the new genus proposed, '*Mullerornis*,' no diagnosis is published, the only detail furnished being 'that they are of medium size, not having the massive and heavy appearance of *Apyornis*, approaching rather the Cassowaries. We only know the bone of the foot.]"—*Natural Science*, April, 1894; pp. 319, 320.

DISCOVERY OF AN EGG OF THE *APYORNIS*.

"A large specimen of the egg of the fabled "roc" of the "Arabian Nights" or *Apyornis*, as the extinct gigantic bird of Madagascar is called, has recently been secured by Mr. J. Procter, of Tamatave and London. It was discovered by some natives about twenty miles to the southward of St. Augustine's Bay, on the south-west coast of Madagascar. It was floating on the calm sea, within twenty yards of the beach, and is supposed to have been washed away with the foreshore, which consists of sandhills, after a hurricane in the early part of the year. The child-like longshoremen of the antipodes, thinking that the egg might have a value, showed the unusual piece of flotsam about, with a view to the sale of it, and it thus came into the hands of Mr. Procter, who has brought the curiosity to London. The egg, which is whitey-brown in colour and unbroken, is a fine specimen, $33\frac{1}{4}$ inches by 28 inches [circumferences], and an even higher value is placed upon it than upon the egg of the Great Auk, which lived within the memory of man. The Brobdingnagian proportions of the egg are better demonstrated by comparison with the eggs of the Ostrich and Crocodile. An Ostrich's egg is about 17 inches by 15 inches, and the contents of six such are only equal to one egg of the *Apyornis*. The measurements of the egg of the Crocodile are normally 9 inches by $6\frac{1}{2}$ inches. It would require the contents of $16\frac{1}{2}$ emu's eggs to equal the contents of this great egg, or 148 eggs of the homely fowl, or 30,000 of the Humming-bird. The last egg of the kind disposed of in London sold for £100, though cracked."—*Scientific American*, Nov. 25, 1893.

NO. III.—OBSERVATIONS RELATIVE TO THE BONES OF HIPPOPOTAMI FOUND IN THE MARSH OF AMBOLISATRA IN MADAGASCAR.

In a Notice presented to the Académie des Sciences of Paris on the 14th Dec., 1868, by M. H. Milne-Edwards, one of us (M. Grandidier) announced that, during the course of excavations undertaken in the marsh of Ambolisatra, situated on the south-west coast of Madagascar, he had discovered the remains of about fifty Hippopotami, mingled with the bones of *Apyornis* and of other animals of extinct species.

The existence of a Pachyderm belonging to an African genus, and which we have since described as a Ruminant belonging to the group of the Zebus, tends to profoundly modify the notions which might have

been entertained as to the ancient mammalian fauna of the island of Madagascar. At the present day, in fact, the Mammals of this country belong solely to special types, and one cannot find among them any of the large Herbivora which help to give to the animal life of Asia and of Africa their most striking characteristics. One might therefore have supposed that it must always have been the same, but the discoveries made at Ambolisatra serve to modify the opinion of naturalists on this point.

Since that date the researches carried on in the interior of the island of Madagascar have led to the discovery of various bones of Hippopotami, of some of which Mr. G. A. Guldberg has given a learned description.*

Lastly, quite recently, Dr. Forsyth Major has communicated to the Royal Society and to the Zoological Society of London the former existence of a species of Lemuroid, much surpassing in size all those which are now living, and from which it differs in very important respects as regards the features of its dentition.

The large work which one of us is devoting to a general study of Madagascar will include a special volume which will contain a statement of all the facts respecting the palæontology of that island. Several plates have already been prepared for this purpose, and these will relate principally to *Hippopotamus Lemerlei*.

The information referring to these plates having some importance, and the description of them possessing a certain utility at the present time, when new excavations are being made in the localities from which the fossils have been derived, it has appeared to us that it will be of service, in the interests of science, to no longer delay making them public. The statement of the facts which they involve will be very short, and will refer only to the general characteristics of *Hippopotamus Lemerlei*, as all the details with regard to this species will be discussed in the larger work. We will only add that we expect at no very distant date, thanks to the abundant material at our disposal, to be able to restore a complete skeleton of the subfossil Madagascarian Hippopotamus. As regards certain extinct species associated with *Hippopotamus Lemerlei*, of which we have some very interesting examples, we shall wait before treating of them, so as to be more fully informed than we are at the present time as to the discoveries which Dr. Forsyth Major is about to make known to the scientific public.

We hope that that learned palæontologist will not delay making known the very valuable information which he possesses, and we shall then not delay to publish our own.

The bones of Hippopotami discovered at Ambolisatra being extremely numerous (those which we have available belonging to fifty specimens of all ages), and their state of preservation being as perfect as possible, it follows that the particular species to which they belong can be treated of in a very thorough manner.

[Here follows a very minute comparison, stretching over 36 pages, bone by bone, first of the skull and the teeth, and then of other parts of

* G. A. Guldberg, "Undersøgelser over en subfossil Flodhest fra Madagascar;" Christiania: Videnskabselskabs Forhandlinger, 1883, No. 6.

the skeleton, of the Madagascarian species with those of Hippopotami from the Gaboon, the Congo, Zanzibar, Mozambique, Southern Africa, and the Nile. It appears from these dimensions that the Madagascarian animal was about two-thirds the size of the African species. The following sentences may be quoted:]

"From the foregoing characteristics [of the skull bones] it appears that *Hippopotamus Lemerlei* was more like the primitive forms of the genus than are the living species in Africa."

And from a minute examination of certain bones of the skull in the various specimens the writers believe that they can clearly distinguish two distinct species, concerning the second of which they say, "we propose to designate the species which is distinguished by the enormous lengthening of the palatine arch by the name of *Hippopotamus leptorhynchus*."

"We would remark that the size of these two Hippopotami of Ambolisatra was the same as that of those animals whose remains were procured from the centre of the island. One skull shown by Mr. G. A. Guldberg measures along its lower surface 0·416; while the length of those which we possess varies between 0·38 and 0·46.*

"It appears to us, in view of such a large number of identical features, that there is not the least doubt as to the identity which exists between the Hippopotami of the Ambolisatra marsh and those of the marshes in the interior of the island. There only remains the question of deciding as to which of the two forms, which we have here pointed out, the Hippopotamus described by Mr. Guldberg is most nearly related. An examination of the figures leaves no doubt at all on the question. The molars being so long and large, it is evidently identical with the *Hippopotamus Lemerlei*, a conclusion which, on his part, the learned naturalist also foresaw at the end of his labours.

"The name of *Hippopotamus Lemerlei* (Grand.) having been proposed before that of *Hippopotamus madagascariensis*, proposed by Mr. Guldberg, ought then to be used for the species which we have described.

"The geological formation in which have been found these Hippopotamus fossils, to which we have here called attention, is evidently of recent date. We may, however, propose the following question: At the epoch when the enormous Lemurians described by Dr. Forsyth Major, and the *Hippopotamus Lemerlei*, *H. leptorhynchus*, and the Zebu were living in Madagascar, had Man already taken possession of that large island? A specimen found in the Ambolisatra marsh enables us to answer this question with certainty. We have had it reproduced on plate xiv., and it consists of a femur bearing on its anterior and posterior faces two deep notches.

"Admitting, as may be proved by referring to plate xi., that the Hippopotami of Ambolisatra must have been engaged in frequent and fierce combats with each other, sometimes resulting in actual crushing in of the bony partitions of their skulls, one ought first of all to ask if these two notches to which we refer might not have been produced by the bite of some other animal. Now it will be sufficient to examine the oval form of these two hollows, and to state that their surfaces are perfectly

* In these figures the mètre is the standard or initial dimension.—EDS.

smooth and polished, to recognize at once that there can be no question of these being accidentally produced, since they are clearly of human workmanship. What was the object which these primitive men had in view in doing such work? It is impossible to say, but the evidence of their work is none the less indisputable.

"We are then led to the conclusion that at that time there lived in Madagascar an animal population which resembled, in certain of its constituents, that special to Africa; that there then existed gigantic Lemurians; that man was already settled on the island, and that it was under his eyes, and probably as a result of his action, that all these species have disappeared of which the subfossil remains only now reveal to us their former existence. The colossal Edentata of South America have been seen by man; the *Dinornis* of New Zealand and the enormous Marsupials of Australia were also present with him; and in Madagascar he was able to observe the *Megaladapis* and the *Epyornis*. The action, still quite inexplicable, which was exerted on certain organisms at the commencement of the present period, and which caused them to attain the proportions which we see no longer in the animals now living in the same regions, has acted throughout the whole of the southern hemisphere. And we may add that it seems to us very probable that researches undertaken in the caves of South Africa, especially in the Transvaal and Natal, where they are specially numerous, would lead also to the discovery of the remains of Mammals and of Birds of very large size.

"What is most surprising when considering the Hippopotami of Madagascar is that, while ordinary influences affected certain organisms and caused them to attain enormous power, they had no effect whatever upon others, which, on the contrary, had a tendency to degenerate. Would not this be an indication that these were not endemic and that they had been brought by human agency? May not that have happened to the Hippopotami which has occurred in the case of the Stags which, when taken to Corsica and subjected to the influences of a maritime climate, have not been long before degenerating to such a degree that they look like dwarfs by the side of their continental ancestors? As regards the Hippopotami of Madagascar, were they not a branch of the genus to which they belong, which had been settled for a long time in the island, and had thus acquired such a fixity of character that they were no longer susceptible to any modification? These are very interesting questions, but we can now only just propose them. Their solution depends on discoveries which will still be made in the same locality; and we have every ground for hoping that, under the influence of advancing civilization, it will not be long before they become known to us."

Translated from the French (Ann. des. Sc. Nat., Zool., 7 sér., t. xvi.) of

A. GRANDIDIER and H. FILHOL,

BY JAMES SIBREE. (ED.)

NO. IV.--RECENT RESEARCHES ON THE FAUNA AND FLORA OF
MADAGASCAR.*Extracted from NATURAL SCIENCE, Vol. iii. No 19, Sept., 1893.*

THE remarkable faunal riches of this African island have been chiefly made known in M. Grandidier's volumes, but there is still much material at Paris lost to science for want of someone energetic enough to work it out. Particularly so is this the case with the Mammalia, and the delay in publication is not only vexatious to the zoologist, but allows others to describe as new, recent accessions, of which specimens are probably buried in Grandidier's collections.* The practice too of issuing volumes of plates unaccompanied by descriptions may perhaps be useful when dealing with the larger animals, but is absolutely valueless (even to secure priority) for insects or plants, in which so much depends on microscopic characters, and can only lead to endless confusion in nomenclature.

The latest information about the Madagascar fauna as a whole may be found in chapter xix. of Wallace's *Island Life* (ed. 2, 1892); but since that time, thanks to the liberal-handedness of Mr. Grose Smith and Mr. Walter Rothschild, material as remarkable for its abundance as for the peculiar value of the specimens has been received in this country; nor must it be forgotten that other workers, such as the Rev. R. Baron and M. Gautier, are largely interesting themselves in the accumulation of material which, though less in quantity, is every bit as valuable as the collections made by Mr. Last. Indeed, one may safely say that any remains, whether fossil or recent, if properly localised and carefully packed, add new light to our imperfect knowledge of this great island.

MAMMALIA.—The remains of Hippopotamus from the Post-tertiary deposits of the island have been known since the time when Murchison exhibited to the Geological Society in 1833 a tusk and molar tooth from a conglomerate, some 30 miles from Antananarivo. Further remains of what may be considered to be the same species were described by Grandidier and Milne-Edwards in 1868 as *H. Lemerlei*. Portions of the skull of another individual, of possibly the same species, have recently been received in London, and will form the subject of a paper by Dr. Forsyth Major.

In June last Dr. Major read before the Royal Society a paper on an extinct Lemuroid from Ambolisàtra, a slightly imperfect skull of which—with a right and left mandibular ramus—has been sent to this country by Mr. Rothschild's collector, Mr. Last. This skull, belonging to an animal approximately three times the size of any described Lemuroid, has been named *Megaladapis madagascariensis*. It is characterised by an enormous lateral development of the anterior inter-orbital portion of the frontals; a comparatively narrow and elongated post-orbital frontal region, separated by a slight contraction from the equally narrow parietal region; a thick and flattened sagittal, and an equally strongly developed occipital crest. The zygomatic arch is high and projects moderately outwards. The general appearance of the skull and teeth indicate an

* We understand that a monograph on the genus Lemur by Milne-Edwards and Filhol may shortly be expected, accompanied by 60 anatomical plates, when we hope the plates issued in 1890 will be properly described.

old individual. The brain-case is comparatively small in size, and is viewed by Dr. Major as a degenerate feature, and he anticipates that in young specimens the cranium would be more rounded in the cerebral region, more voluminous, and the facial portion much shortened.

Evidence has also been forthcoming of the former existence of a Ruminant, but the remains are too imperfect to permit of identification. The colossal Hippopotamus and Rhinoceros (six times the size of an Elephant) of M. Hamelin (*Standard*, 25 July) are imaginative; and the reported destructive powers of the *Cryptoprocta*, which attains a size about equal to that of a Lynx, are, we venture to think, somewhat exaggerated.

AVES.—Many remains of *Epyornis* have been received during recent months, some of which—sent to Mr. Rothschild, and exhibited by him at the Zoological Society—far exceed in size any specimens previously recorded. An egg of this bird was sold in a London sale-room a few months ago in a perfect condition, realising the sum of sixty-seven pounds, which may be considered as quite a fair price. The most recent information on the genus will be found in Burckhardt's paper on some remains which have reached Berlin from Sirabé; and here the pelvis, the upper portion of the metatarsus, and the immature metatarsus have been made known for the first time. A metatarsal of a large Eagle has been found with the remains of Hippopotamus at Ambolisatra.

REPTILIA.—In the May number of the *Geological Magazine* Mr. R. B. Newton described and figured portions of a rostrum and mandible of a Crocodile from the Jurassic rocks of Andrànosamònta. This fossil, which was obtained by the Rev. R. Baron, has been named *Steneosaurus Baroni*. It was associated with Mollusca, referable to *Mytilus* (near *M. tigrensis* from Abyssinia), *Modiola*, *Perna*, and *Trochactæonina*; and since the occurrence of this genus was, in our imperfect knowledge, limited to European areas, the discovery is of the highest importance in questions of geographical distribution. Remains of the huge land Tortoises, named by Vaillant *Testudo Grandidieri*, have been lately received, and two fine specimens have been placed in the Palæontological galleries of the British Museum.

In Mr. G. A. Boulenger's *Catalogue of Snakes in the British Museum (Natural History)*, vol. i. (1893), information will be found invaluable to any one studying Ophidia.

PISCES.—Dr. Sauvage published in 1891* the description of the Fishes from Grandidier's collection, and this text, with the two volumes of plates issued in 1887 and 1888, completes our present knowledge of the group.

MOLLUSCA.—The Rev. A. H. Cooke, dealing with the distribution of the Mollusca in the Malagasy Region, notes the great development of the carnivorous land Mollusca, the occurrence of large numbers of true Helicidæ of great size and beauty, and the prominence of the genus *Cyclostoma*. The molluscan fauna of Madagascar, even as imperfectly known, appears to possess sufficient individuality to separate it off distinctly from that of the main-land. The Helicidæ are quite peculiar, not being found at all in the Mascarenes, Seychelles, or Comoros. They

* *Natural Science*, Vol. i., p. 152.

seem to be rather related to the *Acavi* of Ceylon and the *Pandæ* of N.E. Australia. Fifty-four species of *Cyclostoma* are known from the group, but are not confined to Madagascar, being distributed over the Comoros, Seychelles, Mauritius, and Bourbon as well. The African *Bulimini* are represented by two species, but *Achatina* is scarce. Two groups of *Bulimini* (*Leucotænia* and *Clavator*), are peculiar. A single species of *Kaliella*, identical with a common Indian form, is also recorded. In the fresh-water forms unmistakable traces of Indian relationships are found. There are two species of *Paludomus*; *Bithynia* is recorded; several of the *Melaniæ* are of a type common in the Indo-Malay Region, while the *Melanatriæ*, quite peculiar to Madagascar, have their nearest affinities in Ceylon or East India. Not a single one of the characteristic African fresh-water bivalves has yet been found in Madagascar. Several African genera of *Gasteropoda* occur, and indicate, in common with the land *Mollusca*, as Mr. Cooke points out, that the land connection of Madagascar with Africa must have taken place, but that it occurred at an immeasurably remote period. References to recent literature are given in Mr. Cooke's paper.

INSECTA.—Since the publication of the *Lepidoptera* (1887) from Grandidier's collections, there have been issued three parts of his great work on Madagascar, devoted to the *Hymenoptera*. These contain both text and plates. A second series of plates of the *Coleoptera* was issued in 1890, but, in the absence of the text, the new species can only be considered in the light of manuscript names.

FLORA.—The latest information respecting the botany of Madagascar will be found in the *Journal of the Linnean Society* for 1890. In this volume Mr. Baron gives a general sketch of the flora, dividing the island into regions, and treating of the geographical distribution. The affinities of the plants with those of America, the fruits, cereals, and vegetables, garden trees and shrubs, are all treated of by Mr. Baron, who also gives an appendix of introduced plants. Mr. J. G. Baker contributes to the same volume descriptions of 160 new species collected by Mr. Baron, of which four belong to new genera. A fourth part of Grandidier's great work, dealing with the plants, was issued in 1892, but the foolish practice of issuing plates without text makes this publication of little value at present.

The Mosses and Hepatics are treated of by Stephani, who publishes technical descriptions, with figures of new species.

GEOLOGY.—The geology of Madagascar is best known from the researches of Cortese and of Baron. Cortese supplies a map of the whole island, while Baron deals only with the northern half. Roughly speaking, a line drawn from north to south, and dividing the island longitudinally, shows a granitic and a volcanic area on the right side, and a Secondary, Tertiary, and Recent area on the left side. The crystalline area consists of granite, gneiss, syenite, diorites, amphibolites, and basalts; the sedimentary series, by their included fossils, representing the Jurassic, Upper and Middle Cretaceous, Nummulitic series, and Recent deposits. Much blown sand occurs round the coast, and numerous old lake basins are found, one of which, according to Mr. Baron's map, must have been nearly 300 miles long. It is to these old lake basins that we mainly look for evidences of the ancient fauna of

Madagascar. The petrological characters of the rocks have been described by Cortese, while Hatch has dealt with those specimens brought to England by Baron. For general information on the fossil fauna, see Newton's two papers [*Quar. Journ. Geol. Soc.*, vol. xlv., p. 331; and *Geol. Mag.*, 1893, p. 193, also in ANNUAL XVIII. p. 26], with the references therein contained; and a paper of Stanislas Meunier in *La Naturaliste* for Aug. 1, 1893. In this last paper figures are given of several Cretaceous oysters from Mahamayo, recently received from M. Gautier, and some general notes on Malagasy geology are appended.

GEOGRAPHICAL AND ZOOLOGICAL RELATIONSHIPS.—The observations of Mr. H. O. Forbes, which include Madagascar, and of which the essence was given in this Journal for July, may be compared with those of Rüttimeyer, *Ueber die Herkunft unserer Thierwelt* (4to, Basel und Genf, 1867), and with those of Emile Blanchard, "Les preuves de l'effondrement d'un continent Austral pendant l'âge moderne de la terre" (*Comptes rendus*, vol. xciv., 1882, pp. 386 and 395); while much general and particular information will be found in Dr. Blanford's address to the Geological Society, and in his review of Boulenger's *Catalogue of Snakes in Nature*, Aug. 3, 1893.

Hans Gadow, in the last number of Bronn's *Klassen und Ordnungen des Thierreichs* (vol. vi., pt. 4, 1893), has some observations on the geographical distribution of the Ratite and rail-like birds.*

C. DAVIES SHERBORN.

A MALAGASY PROVERB.

HITHERTO I have regarded the proverb "*Ron-kenan' ny Mandiavato, ka ny sisa tsy lany anasan-tongotra*" as a mere figure of speech. Recently, however, I came upon a statement in a letter from a missionary in Pondoland, which makes it appear likely that the proverb had its origin in an actual custom. The missionary, after describing how cooked beef was served, goes on to say: "The natives had a second course of what they called soup. They drank some and used the rest to make their legs shine."

W. E. COUSINS.

* [An appendix of papers referred to is given at the end of the above article, but as they were included in the List of Pamphlets and Papers in "Literary Notes" in our last Number, it is not repeated here.—EDS.]

THE RELATIONSHIP BETWEEN THE MALAGASY AND MALAYAN LANGUAGES.

STUDENTS of the Malagasy Language and those interested in Comparative Philology will probably welcome the following paper as a valuable contribution to the subject of the relationship existing between the Malagasy and the Malayan languages. The paper was sent by the author to Mr. Richardson. Having read it through with great interest, I thought I could not do better than translate it and publish it in the ANNUAL, but as it is somewhat long, part of it must be left over until next year. I have only omitted a few unimportant foot notes, and an occasional note of my own I have put within brackets. — R.B. [ED.]

(On account of an insufficiency of properly accented type *é* is used for *e* throughout this paper.)

CHAPTER I.

INTRODUCTION.

THE MALAGASY AND MALAYAN LANGUAGES.

1. The Malagasy language belongs to the Malayo-polynesian stock. It is, along with a number of other languages, among which the most widely known are the Malayan and Javanese, a language distinct in itself, which Dutch scholars name the western division.

2. If we treat the Menangkabau branch of the Malayan family as a separate language, and disregard the changes which it has experienced away from its native home in places where it has become the medium of commerce, it is seen to be a very distinct entity in itself, with very few dialectic differences. Not so the Malagasy. When we speak simply of the Malagasy language, however, that form of it spoken in Imerina is meant. From this the various dialects which are spoken outside Imerina differ considerably. Richardson, in his Dictionary, combines all these under the term "Provincial." The provincial dialects of the Malagasy, when used for purposes of comparison with the Malayo-polynesian languages, are of no small interest. Much old language-material, which has been lost in Imerina, has been preserved in the provinces. For instance, *dia=lijar*,* wild, is only found in the provinces [*bibi-dia*, a wild animal, is, however, used in Imerina. — R.B.]. Moreover, the provincial forms are often more ancient than those in use in Imerina. For instance, the original Malayo-polynesian (also the Malayan) *t* is often preserved in the provinces, while in Imerina it exists as *ts*; e.g. the Malayan *putih*, white, is represented in Imerina by *fotsy*, but in the provinces by *foty*.

The Malagasy has several striking agreements in letters with the Batak, to which Van der Tuuk was the first to call attention; for example, both these languages have in many cases an *h* where the remaining Malayo-polynesian languages have a *k*, e.g. Malagasy and Batak have *lahi*, male, whereas the Malayan has *laki*. But Richardson gives cases in which the provincial Malagasy has a *k*, e.g. *kodidina*, around, for the Imerina form *hodidina*, the Malayan form being *kulilin*. Malagasy philology has therefore yet to show whether this Imerina form in *h* is a later development, or is the same as the Batak *h*.

* In equations such as the above I always place the Malagasy word first.

3. There occurs in the Malagasy, as also in the Malayan, a difference between the spoken and the written language, though this is of slight amount. Thus, in the Malayan certain conjunctions are employed only, or almost only, in the written language; and Richardson remarks in his Malagasy Grammar that the passive with the infix *-in-*, e.g. *zinara*, from *zara*, to divide, is "much more commonly heard than seen in writing."

4. The dictionaries of both languages contain many introduced words. Both have borrowed in the first place from the Sanscrit, then from the Arabic, and finally from European languages. The Malagasy has further been influenced by the Swaheli, and this element exceeds what is shown in the dictionary, though this is considerable; it is therefore of special importance. I think I am not wrong in saying that Friedrich Müller first called attention to this.* I would like above all to put the question whether, in the formation of the Malagasy verb, especially as regards the tenses and the relative voice, the influence of the Swaheli, which also possesses these forms, may not have played some part. I will give a single concrete example in order to show how important for the study of the Malagasy is the Swaheli. "Eye" is in Malayan *mata*, in Malagasy *maso*. One is accustomed to compare these words together and say that *maso*=*mata*, and thence to conclude that the original Malayo-polynesian *t* may become *s* in Malagasy. But I have doubts about this. All the Malayo-polynesian languages have the form *mata* or *matak* or *matae*;† none shows *s* or *o*, as in the Malagasy word. I do not know another case where the Malayo-polynesian *t* becomes *s* (and therefore I doubt the above). Now the word for "eye" in the Swaheli dialects is *meso*, *macho*,‡ etc. I take it then that, under the influence of the Swaheli, *mata* has been changed into *maso*.

5. Although the type of the Malayo-polynesian language-stock is very different from that of the Indo-germanic (inflection in this, stem-isolation in that), yet the life of the two shows many parallels. The Malayo-polynesian languages show, for example, just as the Indo-germanic do, a tendency continually to destroy an originally rich abundance of forms. Very ancient is, for instance, the Sangir dialect; in this respect it stands on the same level as the Slavonic; the Malayan has advanced considerably, and may be compared with the Neopersian or the English; while the Malagasy takes a medium place. On the other hand, as far as concerns original letters, the Malayan is much older than the Malagasy. In words like the Malayan *puluh*, ten, *putih*, white, *pilih*, to choose, all the western Malayo-polynesian languages have *p* as the first letter||, and *p* is therefore to be looked upon as the original; the Malagasy alone has *folo*, *fotsy*, *fidy*. [*Roa-polo*, 20; *telo-polo*, 30; *fito-polo*, 70; *valo-polo*, 80, have always appeared anomalies to those acquainted with Malagasy; analogy would lead one to expect *roa-folo*, *telo-folo*, *fito-folo*, *valo-folo*. This *p* then may not unlikely be the original *p* in *puluh*. *Sivi-folo*, 90, is the only one in the tens in which *f* occurs, and though this is the form we should expect in Malagasy, it is out of harmony with the others. The remaining ones are *efa-polo*, *dimam-polo*, *enim-polo*. — R.B.]

6. The Malagasy has, if I may so express myself, a very civilised character. It possesses a great number of root expressions for abstract ideas.** It holds, as just remarked, the happy mean between superfluity and poverty of forms. It treats the article in the same way as a European language does, e.g. *sambo*, ship, *ny sambo*, the ship; *marina*, true, *ny marina*, the truth; *firy moa ny anao*, how many are (the) yours? It

* Bei Besprechung des Auslautes in Malagasy

† They are enumerated in Brandes' "*Bijdrage*," p. 12.

‡ That this is the plural does not affect the matter.

|| Brandes, "*Bijdrage*," p. 12.

** A. Marre in his "*Aperçu phil.*," p. 11 ff. calls special attention to this.

possesses an expression for "to have" (*manana*), for "yes" (*eny*), for "no" (*tsia*). The personal pronoun distinguishes the *casus rectus* from the *casus obliquus*. The verb has the three tenses; the relative voice is a very handy form of speech. The capability of the language for forming compounds is considerable. The use of the possessive (§ 70) is not too redundant. These are distinct advantages which are almost entirely wanting in the Malayan. As a disagreeable peculiarity, from which the Malayan is free, may be mentioned the very frequent use of the adverbs of place. The Malagasy say, for instance, not merely "he dwelt in the house of the Egyptian, his master," but it places before the preposition *an* (=in) the adverb of place *ao* (preterite *tao*), and says: *nitoetra tao an tranon' ilay Egyptiana tompony izy*. And it may be noticed as a curious fact that the adverbs of place form in Malagasy a perfect by prefixing a *t*, e.g. *misy totozy ao am-bata*, there is a mouse (there) in the box (*vata*, see § 58); *nisy totozy tao am-bata*, there was a mouse (there) in the box.

7. The Malayo-polynesian languages have a law in regard to spelling which is as often referred to as is the *Vernersche* law in the places where the Indo-germanic languages are spoken. This is Van der Tuuk's 1st law, viz., "In a great number of words which in Malayan (and also in a number of Malayo-polynesian languages) have an *r*, the Tagala have *g* as its equivalent, while in Dayak we meet with *h*, but in Javanese no consonant at all occurs." With respect to the Malagasy on this point see § 53; examples: "thread, sinew" is in Malayan, Batak, and Sunda, *urat*; in Tagala and Bisai (?) *ogat*; in Dayak *uhat*; in Kawi *wwad*; in Javanese *wod*; and in Malagasy *ozatra*.

Having from § 1 to § 7 given some general remarks concerning the Malagasy and the Malayan languages, which may serve as introduction, I proceed to notice the literature which has appeared on the subject.

LITERATURE.

8. The philology of the Malayo-polynesian languages was founded by two men, who, through their mental ability, their familiarity with the examination of languages in general and the Indo-germanic in particular, their knowledge of the languages and the condition of civilization of the Malayo-polynesian lands, as well as through favourable outward circumstances, were in an especial manner equal to the task before them. These are H. Kern and H. N. Vander Tuuk. The latter of these led the way with his writings concerning the Batak language, as also with his dictionary, reading book, and grammar (1861–1867). From this time to the summer of 1873, when the excellent Sangir grammar by N. Adriani appeared, a great number of contributions to Malayo-polynesian philology were published in Holland. The most classical of these works is H. Kern's *Fijian language compared with its allied languages of Indonesia and Polynesia* (Amsterdam, 1886). The dissertation of J. L. A. Brandes: *Bijdrage tot de vergelijkende klankleer der westersche afdeeling van de maleisch-polynesische taalfamilie* (Utrecht, 1884), and also the papers on the subject brought before the Oriental Congress at Leiden, gave, by exhaustive treatment, a welcome review of the various problems connected with Malayo-polynesian philology.

9. Frenchmen and Englishmen have also made important contributions. Of the English contributions those by Richardson and Cousins have been, for the writing of my essay, of special importance, and of those by Frenchmen those of P. Favre and A. Marre. [The author seems to use the name A. Marre for A. Marre de Marin.—R.B.]

10. Van der Tuuk was the first who published a comparative philological work in relation to the Malagasy language. This is the *Outlines of a Grammar of the Malagasy Language* which appeared in the Journal

of the Royal Asiatic Society, 1864. A further philological treatise on the Malagasy language was published by A. Marre in the papers of the Oriental Congress (1883), viz., *Aperçu philologique sur les affinités de la langue malgache avec le javanais, le malais, et les autres principaux idiomes de L'archipel indien*. In addition to these treatises the above-mentioned dissertation of Brandes forms a third.

The treatise of Van der Tuuk is divided into two parts: Introduction (pp. 1-10) and Orthography ("Phonetic System") (pp. 10-24). In the Introduction the comparison between the Malagasy and the remaining Malayo-polynesian languages in general is first given; then he shows that the Malagasy exhibits certain definite and striking similarities of expression with the Toba dialect of the Batak language; he then brings forward various similarities between the Malagasy and the other Malayo-polynesian languages in grammatical structure and in the lexicons (vocabulary?); upon this follow some laws in regard to mutual equivalents in letters, and remarks on words introduced into Malagasy from the Sanscrit and Arabic, dialectic peculiarities forming the conclusion. In the second part follow in order the letters (vowels, diphthongs, consonants), weak syllables ("dumb sounds"), accent, vowel and consonantal changes, insertion of consonants, dialectic peculiarities in spelling, metathesis, and the general character of the root.

Marre's dissertation consists of three parts: In the first (pp. 3-27) the author gives first of all a review of the works of other Dutch scholars; then he treats of the words introduced into Malagasy and the other Malayo-polynesian languages from the Sanscrit; and then more especially goes on to show that the Malagasy has its own peculiar expressions for many abstract ideas, while other Malayo-polynesian languages have borrowed the words expressive of these ideas from the Sanscrit. Then come remarks on the grammatical relationship of the Malagasy to the Malayan and Javanese and other allied languages. Finally, he discusses the geographical distribution of the various Malayo-polynesian languages. In the second part (pp. 28-34) he briefly touches on the Malagasy letters. The third (pp. 35-160) forms the chief part. Here the author gives us about 500 Malagasy words (roots), together with their corresponding words in the Malayo-polynesian languages, arranged in suitable categories, each in alphabetical order.

Brandes' dissertation is occupied especially with Van der Tuuk's first law. In addition to this there are a number of appendices. The Malagasy is especially spoken of on pp. 44-53 and 118-119. Here the author treats of the place occupied by the Malagasy in regard to the above-mentioned law.

The Malagasy-English Dictionary of Richardson (Antananarivo, 1885) contains also derivations, though these do not form the chief value of the book, there being only a few of them; its chief value consists rather in its uncommonly handy and convenient arrangement. And this is praiseworthy, as the Malagasy verbal forms are often difficult to disentangle. An eye little practised in the subject will not, for example, be able quickly to see that in the imperative *andavo* the root is *la*, and that in *ahabiazana* (relative mood) it is *be*.

The ANTANANARIVO ANNUAL also contains all kinds of contributions to a knowledge of the Malagasy language. I myself indeed have not read it, but the information, which my honoured teacher Prof. Niemann published in the *Bijdragen* of the Institute was at my service. He, moreover, was so good as to refer me to the same, which was necessary for my purpose.

11. The above writings on the Malagasy do not occupy themselves with the whole structure of the language. Such a complete work does not yet exist. There are several grammars which have practical aims in view. I may mention as an example W. E. Cousins's *A Concise Introduction to the Study of the Malagasy Language* (Antananarivo, 1885). The number of Malayan grammars is legion. As a specimen of these I may mention D. Gerth van

Wijk, *Spraakleer der maleische taal* (Batavia, 1890). Of treatises which deal with the Malayan from a purely scientific standpoint, and take into consideration its whole structure, there are two. One is the division entitled *Stammisolerende Sprachen* (Inflectional languages) in F. Misteli's *Charakteristik der hauptsächlichsten Typen des Sprachbaues* (Characteristics of the chief types of language-structure), pp. 229-266; the other is the Malayan Grammar by J. Pijnappel (Amsterdam, 1888). The latter describes the peculiarities of the Malayan, but gives no comparisons with other Malayo-polynesian languages. A description of the genius of the Malayo-polynesian languages is given by G. von der Gabelentz in *Sprachwissenschaft*, pp. 390 ff.

12. Of the statements which are met with in Dutch treatises one at least has not convinced me of its truth, it is that with respect to the vowel-divider. I must explain my position, because this subject plays a not inconsiderable rôle in the Malagasy. A demonstrative pronoun meaning *this* is in some Malayo-polynesian languages *i*, in others *ii*, in others *ini*. Now according to some authors, *ii* and *ini* are reduplications of *i*, and in the case of *ini* the *n* has entered as vowel-divider. But I see no absolute necessity for thus referring all these three forms to one. In the Indo-germanic languages no one thinks of referring *so* and *to* to one fundamental form. Moreover, other Malayo-polynesian languages have this demonstrative in the form *ni*, as have also the Malagasy and the Malayan. Whence then comes the *n*? I accept two radical forms: *i* and *ni*; *ini* is then a corruption, such as those known in the Indo-germanic languages, and *ii* is a doubling of the same element (*i*). I would venture to go still further—and there are grounds for it—and would look upon *n* and *i* as radical elements, and would consider *ni* as a corruption. Here is another case: various Malagasy roots have a *v* between the final vowel and the passive ending *ina*, thus, the passive of the root *la* is *lavina*, refused. This *v* is looked upon by some as merely a vowel-divider, but I do not see why a vowel-divider should appear here. The number of roots ending in *a*, which have no such *v* in their combination with *ina*, is considerable, e.g. *lanja*, to weigh, forms *lanjaina*; *laza*, to tell, forms *lazaina*, etc. My view is as follows: a number of roots which end in *u* (written *o*; see § 42) have from this *u* developed a *v* before *ina*. Thus arises *diovina*, being purified, from *dio+ina*; *lovina*, rotted, from *lo+ina*. In forms like *lavina* a bridging over has taken place. Such a series, as *lo* (root), *mando* (pres. act.), *lovina* (passive), has caused the latter part of a series such as *la* (root), *manda* (pres. act.),* *lavina* (passive), to be similar to its own (i.e. has been, so to speak, infectious).

13. But let me keep myself strictly to my theme. I draw no parallels with analogous phenomena in the Indo-germanic languages, although the temptation to do so is often powerful enough. When, for example, the Malayan *karan* appears in the Malagasy as *harana*, a rocky steep; *panas* as *fana*, hot; *tindih* as *tsindry*, pressed; one is immediately reminded of Grimm's law, and when the original Malayo-polynesian *pepet* occurs in the Malayan as *a* and in the Malagasy as *i* (§ 44), the relationship of the Latin *pater* to *ai* (?) *pitar* occurs to one. Or when the root *tao*=*taruh* means sometimes "to set," sometimes "to make," we are reminded that the root *dhe* in the Indo-germanic may also signify "to make," for instance, the inscription of Alvend: *hya martiyam adda*. In the same way we observe all similar psychical occurrences in the Malayo-polynesian as in the Indo-germanic languages; for example, "on the right hand" is in Malayan *kanan*, and with this form coincide the equivalents in Javanese, etc. One would therefore expect in Malagasy *hanana*, but the actual word is *havanana*. Here the beginning of the word is formed in harmony with the Malagasy *havia*, on the left hand.

* Compare Misteli, *Charakteristik*, p. 517.

In like manner I make no comparisons with other Malayo-polynesian languages, excepting where I need them as proof, especially for transition members.

14. I have only after some reluctance undertaken the present task. The study of the subject might be made of real value if one could settle what linguistic elements were common *only* to the Malagasy and the Malayan, and were not found in other Malayo-polynesian languages. But that, in the present state of things, is not possible, for a considerable number of these languages are without or are insufficiently provided with dictionaries and grammars, and the study of the important subject of Malagasy dialects is only as yet in its infancy. One might therefore almost question the advisability of taking up the present theme. But to this one might reply in the same manner as Delbruck at the end of his Introduction to a Comparative Syntax of the Indo-germanic languages has done. And therefore I have ventured to undertake this theme "traendo profitto dalle indagini altrui."

15. I may here repeat what I have already said in the Introduction to the first part of my "Malayo-polynesian Studies," viz., that these papers are not meant in the first place for my brother philologists, but for a larger circle of people. Therefore I have thought it best to be somewhat circumstantial in style and to banish technicalities.

CHAPTER II.

VOCABULARY.

16. I am acquainted with about 600 equivalent forms (roots) in Malagasy and Malayan, whose identification I feel perfectly certain of. Some of these I myself have found; these I need not mention here, as they will occur in their proper places by and by. To these 600 some others may be added, which, however, for one reason or another, I have doubts about. When I introduce any of these, I will add my doubts about them at the same time.

17. Of the identifications which hitherto have been given by those who have occupied themselves with this subject, some, I am convinced, are correct, and others incorrect. I will give the latter.

Of Marre's identifications I do not accept the following:—

Fela-tanana=*télapakan tañan*, the palm of the hand. *Télapakan* is derived from *tapaq*, a word of similar meaning, while *fela-tanana* signifies the palm of the hand. Neither spelling nor meaning therefore correspond.

Sara=*sarat*. The former means the fare of a canoe, the latter, heavily laden. The meanings do not correspond.

Fompona=*himpun*, to collect, assemble. The Malagasy *fompona* belongs to the Dayak *pumpōn*, and the Malagasy provincial *imbona*, living in common, belongs to the Malayan *himpun*. Of course both words, *fompona* and *himpun*, have the same primary root, but they are not directly connected.

Goaika=*gagaq*, a crow. The vowels do not agree. The Malayan *gagaq* belongs to the Malagasy provincial *gaga*, unless indeed both are onomatopoeic forms independent of one another, as also is *goaika*.

Lafika=*lapis*. The meanings are different. The Malagasy *lafika* means "bed, bedding, sheet." The Malayan *lapis* means, "layer, series, stratum." The Malagasy *lafika* belongs to the Malayan *lapiq*, underlier. [This corresponds more precisely with *lafika*, which properly means something on which something else is laid, as a blotting-pad, for instance, and therefore probably *lafika*=*lapis*.—R. B.]

Lambondrano, sea-hog, porpoise=*lumbalumba*, a porpoise. These neither agree in form nor meaning. [How do the meanings not agree?—R. B.]

Falafa=*pélupuh*. According to Richardson the Malagasy *falafa* only signifies "the midrib of a banana leaf," and so it belongs to the Malayan *péltpah*, "midrib of a palm-leaf." [But *falafa* also means the midrib of a palm-leaf. — R.B.] If, however, there is a Malagasy homonym, *falafa*, meaning "claire, cloison," it belongs directly to *pélapah*, "bamboo split and beaten flat," and has only a more distant relationship to *pélupuh*, which latter word is of like signification.

Tendry, tondro=*tanda*, to mark, to indicate. To the Malayan *tanda*, sign, characteristic, belongs the Malagasy *tandra*, a mole in the skin. The Malagasy *tondro*, forefinger (*manondro*, to point with the finger), belongs to the Malayan *tundjuq*, to point to, *télundjuq* (= *t+él+undjuq*), forefinger. The Malagasy *tendry*, order, direction, appears to have no representative in the Malayan. [*Tendry* scarcely means "order, direction," but rather appointment, the radical meaning apparently being, to put your finger on (someone), hence to appoint (to some office). — R.B.]

Hety=*guntiñ*, scissors. The spelling does not agree. All other Malayo-polynesian languages have exactly the same word as the Malayan.

Fanovo=*opih*. Form and meaning both different. *Fanovo* is a vessel for drawing water, and comes from *tovo*, drawing, drawing water; *opih* signifies the tough leaf-sheath of certain palms of which one makes little vessels called "emmertjes."

Fona=*ampun*. The Malagasy *fona* means to solicit, to intercede, to beg pardon. The Malayan *ampun* signifies to pardon, to forgive. The Malagasy *fona* belongs to the Malayan *puhun*, to beg, to plead.

Rarana=*laran*, forbidden, are not directly connected. The Malayan *laran* is a root, but the Malagasy *rarana* is a participle, as indeed the accent upon the second *ra* shows. The Malagasy root is *rara* (§ 39).

Ala=*alas*, a wood, do not correspond; neither do *marary*=*lara*, ill, nor *akata*=*dukut*, grass; for *alas*, *lara*, and *dukut* are introduced into Malayan from the Javanese. Moreover, the identification of *akata* with *dukut* is scarcely allowable because of their spelling.

Of Richardson's identifications I do not accept the following :—

Manaiky=*ménaku*, to confess, agree to. These do not agree either in form or original meaning. The Malagasy *manaiky* comes from the root *aiky*, with the same meaning, but *ménaku* comes from *aku*, I; it really means therefore "to say I." [The Malagasy *manaiky* means literally "to say yes." — R.B.]

Ampanga=*paku*, a fern. The spelling is different. To the Malayan *paku* belongs the Malagasy *faho*, "a handsome palm-like shrub" [a Cycad — R.B.].

For my objections to *tily*=*tiliq* see § 50.

Other identifications found in various periodicals I hesitate to accept, e.g. *kongona*, a bug=*kutu*, a louse, is scarcely to be accepted. The spelling of these makes it difficult to accept them as identical; besides, *kongona* appears to be introduced from the Swaheli. Also *ambany*=*bawah*, below, and *anaty*=*atas* I do not consider probable. The identification of *ambany* (*an+vany*)* with *bawah* is to be objected to on account of spelling, and *anaty* does not, like *atas*, mean "above," but "within, inside." The identification of *tamotamo*=*tema*, name of a plant, is doubtful, because, according to Richardson, this plant has been introduced.

A number of other identifications which certain philologists have given require strict examination. I doubt their correctness, though I have not found sufficient proof for rejecting them. Such are, *tapaka*=*kapaq*; *lefaka*=*sépoq*; *tsapa*=*tjoba*; *tsapa*=*djabat*; *verina*=*béri*, etc., etc.

* The accent on *ba* is against its being divided thus, *amba+ny*.

RELATIONSHIP IN THE WORDS.

18. In order to show the relationship between Malagasy and Malayan words, I will first mention some of the names of different parts of the body. *Fify*=*pipi*, cheek; *lala*=*lidah*, tongue; *orona*=*hiduh*, nose; *tanana*=*tañan*, hand; *fe*=*paha*, thigh; *ozatra*=*urat*, nerve, vein, muscle; *foitra*=*pusat*, navel; *tratra*=*dada*, breast; *tomotra*=*tumit*, heel; *ra*=*darah*, blood.

19. The following have an interest as regards the progress of civilisation:—

The Malagasy and the Malayan have at least for one metal a name in common, *vy*=*bési*, iron. There may be also mentioned, *firaka*=*peraq*, which, however, means "lead, pewter" in Malagasy, and "silver" in Malayan. There are, moreover, in common a considerable number of names of implements: *fangady*=*péngali*, spade; *tehina*=*tékan*, a walking-stick; *tady*=*tali*, string; *sotro*=*sudu*, spoon; *leona*=*lísun*, a mortar; *vovo*=*bubu*, a basket used in catching fish; *tezezana*=*titian*, a bridge; *finga*=*pingan*, bowl, basin; *toko*=*tunku*, trivet. The following may also be mentioned: *landai-zana*=*landasan*, anvil; *sodina*=*soliñ*, fife, flute; *zahitra*=*rakit*, raft; *hamory*=*kémudi*, rudder; *lay*=*lajar*, sail; *toaka*=*tuwak*, spirituous liquor.

The numbers up to 1000 are also common: *folo*=*puluh*, ten; *zato*=*ratus*, hundred; *arivo*=*ribu*, thousand.

The fact that the night-owl in both languages is called the ghost-bird (Malagasy, *vorondolo*; Malayan, *burun-hantu*) points to a community of religious and animistic notions.

20. The Malagasy and Malayan languages possess only a small number of metaphorical words, the Malagasy having rather more than the Malayan, thus: *sandry* in Malagasy signifies both "arm" and "strength," *voninahitra* (= *vony*+*n*+*ahitra*), flower of the grass, signifies also "fame, honour." In Malayan *randa tuwa* means "an aged spinster," and *mé-randa-tuwa* means "no more useful on account of age." Some metaphorical words are common to the two languages. In both languages, for example, "dead bound" (Malagasy, *fehimate*; Malayan, *di-ikat mati*) means a thing tied so fast that one cannot loosen it. Among the names of plants and animals too are to be found metaphorical words. Others are given in the compound words (§§ 22 and 76).

21. The names expressive of relationship show no special agreement. It is interesting to note that in one of the Malagasy provincial dialects the younger brother of the father is *ada-kely*, and that in the Malayan the youngest brother of the father or mother is *bapa kítjil*, the words signifying in both cases "the little father."

22. The Malagasy possesses a considerable number of compounds which occur also in Malayan with similar form and signification, e. g. *hodi-kazo* (from *hoditra* and *hazo*)=*kulit kaju*, bark of a tree, or, literally, skin of a tree; *voavitsy*=*buwah bitis*, calf of the leg, literally, fruit or tuber of the leg; *valo-afó*=*batu api*, firestone or flint; *voaniho*=*buwah njijur*, cocoa-nut; *vainafo* (= *vai*+*n*+*afó*)=*bara api*, glowing charcoal; *lelafo* (= *lela*+*afó*)=*lidah api*, flame, literally, tongue of fire. *Ovy*=*ubi*, means yam, potato; from these the Malagasy and the Malayan have the two following similar compounds: *ovihazo*=*ubi kaju*, and *ovifotsy*=*ubi putih*, but whether these actually refer to the same species of plants, I cannot tell. The following do not quite agree in signification: *tain-dalerina* (= *tai*+*n*+*lalitra*+*ina*), having black specks on the face, and *tahi-lalat*, freckles. *Tai*=*tahi* signifies excrement; *lalitra*=*lalat*, a fly. See also *aferon-tany* and *tain-kintana* in § 24.

23. The meaning of similar words does not always strictly correspond, thus, *rompotra* signifies in Malagasy "manioc leaves," but *rumpūt* in Malayan means "grass." Or the limits of the meaning of words do not coincide, e.g. *aty* signifies in Malagasy "the liver, the inside," while *hati* means in Malayan "inside, liver, stomach, heart, marrow, kernel, mind." But there is a number of words with wide meaning, which quite or almost coincide, e.g. *foitra*=*pusat* signifies navel or centre; *findra*=*pindah*, to change place and also to cross over; *tanana*=*tanān*, hand or forefoot; *mora*=*murah*, kind, liberal, cheap; *vono*=*bunuh*, to kill and to extinguish.

24. There are various kinds of agreement in the names of plants and animals in both languages. In Malagasy many plants are named with a masculine or feminine termination in order to denote the kind, thus: *varilaky*, male rice, referring to a special variety. The Malayan has also traces of this peculiarity, e.g. *rotan bini*, female rotan, a certain kind of rattan. *Aferon-tany*=*hampédu tanah*, lesser centaury, is a plant name pretty similar in both languages, but whether it signifies the same plant, I know not. [It does not.—R.B.] The Malagasy *lelaombe*, lit. ox-tongue, a species of *Senecio*, reminds one of the Malayan plant named *lidah ajam*, fowl's tongue; the Malagasy *tainakoho* (= *tai*+*n*+*akoho*), lit. fowl's excrement, a kind of shrub, reminds one of the Malayan *buña tahi ajam*, lit. flower of the fowl's excrement; the Malagasy *taindambo* (= *tai*+*n*+*lambo*), lit. swine's dung (= *Setaria glauca*), reminds one of the Malayan *rumpūt tahi babi*, lit. swine dung's grass. Strikingly in agreement is the meaning of *taintintana* (*tai*+*n*+*kintana*) with the Malayan *tahi bintang*, both signifying literally, star-droppings, but in reality meaning small insects in Malagasy and small caterpillars in Malayan. [They are not small insects in Malagasy; they are fully two inches long. R.B.]

INTRODUCED WORDS IN MALAGASY AND MALAYAN.

25. The oldest introduced words both in Malagasy and Malayan are those borrowed from the Sanscrit. They have been subjected to the same changes in Malagasy as genuine Malayo-polynesian words have. But whilst the Malayo-polynesian languages, which were best able to borrow Sanscrit words, have, for the most part, borrowed a great many, the Malagasy only possesses a few, viz. *samy*, everyone; *sisā*, remainder; *trosa*, debt (see § 47); *hetsy*, a hundred thousand. One is almost tempted to suppose that in one or two of these words there is a mere accidental similarity, especially as *trosa* and *dosha* do not exactly coincide in meaning. [*Trosa* is really the money borrowed or lent.—R.B.] And it is extremely doubtful whether *tsara*, to judge, is the equivalent of *ācarā*, custom, usage. But *hetsy*=*koṭi* cannot be accidental, although the meanings do not agree. The Malayan though uses *kēti* for a hundred thousand.

26. The Malayan has taken far more words from the Arabic than the Malagasy. Several cases may be enumerated in which both languages have borrowed the same word, e.g. *kabary*=*chabar*, proclamation. [*Kabary* among some of the Betsimisaraka means business or message. When a person looks in at the door, the owner of the house always says: "What is your *kabary*?"—R.B.] Both languages have borrowed the names of the days of the week from the Arabic, e.g. *Talata*=*Salasa*, Tuesday. From the Persian comes *nahoda*=*nachoda*, captain. But it is still to be found out through what channel the word was introduced into the two languages. [Whether the Malagasy use the word *nahoda* is somewhat questionable; the Mozambiques and Comoro men on the north-west coast use it.—R.B.] Moreover the Malayan possesses a number of introduced words from the Dravidic and Indian languages, and also from the Chinese, and a still greater

number have been derived from European languages, especially the Portuguese and Dutch. The number of Swaheli words in Malagasy is, as has been already stated, very considerable, e.g. *ngozy*, leather; *mpira*, gum; *kifongo*, a button; *kilamby*, a woman's garment. Words borrowed from English and French, however, are the most numerous, e.g. *kilasy*, a class; *lakolosy*, a bell (Fr. *la cloche*); *zaby* or *anaby*, a coat, the first from the pl. *les habits*, the last from *un habit*; *tiona*, tune (Engl. *tune*). A few foreign words show curious imitations in native dress, e.g. *telegraph* changes to *teny lavitra* (far word).

CHAPTER III.

ORTHOGRAPHY (or PHONETICS).

THE ROOT.

27. The great majority of Malayan roots are dissyllabic. The Malagasy has, besides dissyllabic, many trisyllabic roots, caused by the addition of an *a* to the end of certain Malayo-polynesian words. Thus the word for "wind" is dissyllabic in all Malayo-polynesian languages. In Malayan, Javanese, Balinese, and Sundanese, it is *anin*; in Kawi and Tagal, it is *hanin*; in Buginese and Macassar it is *anin*; and in provincial Malagasy *anina*. In Malayan and Malagasy several words ("formwörter") are monosyllabic, e.g. the definite article *ny*; *sy*, and; *fa*, for, but; *na*, or; *no*, a particle; *ho*, for. In Malayan there are, e.g. *dan*, and; *di*, in; *pun*, a particle; *nun*, there. Common to the two languages are *ha=ka*, up to; *ny* (def. art.)=*ni*, this; the provincial Malagasy *la=lah*, a particle; the inseparable pronominal suffixes (never used alone) *ko=ku*; and *ny=nja*. Both languages possess also some monosyllabic primary roots, but the Malagasy has more than the Malayan, e.g. the Malayan *sap*, a bit of stuff; *kan*, certain planks on a ship; *mal*, a capital; — the Malagasy *fy*, dainty; *py*, wink; *ro*, gravy; *fo*, heart; *zo*, fame. The Malagasy further possesses a not inconsiderable number of monosyllabic names of plants and animals, e.g. *ba*, a kind of shrub; *ko*, *ma*, and *za*, different kinds of plants, the last being the Baobab; *hao*, a louse; *hay*, a kind of insect; *fay*, a kind of fish; *do*, a kind of serpent; *ta*, a chameleon. Most of these expressions are, however, provincial Malagasy. Some Malagasy monosyllabic roots are derived from dissyllabic ones, e.g. *vy=btisi*, iron, and probably also *ra=darah*, blood.

Also some trisyllabic roots are common to both languages, e.g. *hodi-dina=kulilin*, round about; *salobona*, a veil=*selubun*, a covering.

28. Both the Malayan and the Malagasy possess a considerable number of homophonous roots, but the Malagasy more than the Malayan. For example, the word *hasina* signifies in Malagasy (1) supernatural virtue, (2) money presented to the Sovereign in token of homage, (3) rocked on a cloth, (4) twisted or spun, (5) to fall down at full length, (6) very round. [To these may be added (7) the cotton plant (Betsileo name), and (8) a species of *Dracæna*.—R. B.] Common to both languages is *fihitra=pihata*, meaning (1) a kind of large fly, (2) to grasp.

29. Not seldom the derivative only is in use in one language, while in the other the root is still employed, e.g. there is a Malayan root *sinat* meaning "the sting of an insect," from which is derived *pinjénat*, a wasp, the Malagasy possessing only the derivative *fanenitra=pinjénat*. On the other hand the Malagasy only possesses the root *fady=ptimali* (*pt+nasal +pali*), taboo.

30. There is a goodly number of Malagasy roots which differ in the second, more rarely in the first, half from the Malayan roots in the fact that these differing syllables have no relation to one another, e.g. "sand" is in Malagasy *fasika*, in Malayan *pasir*, the finals *ika* and *ir* of which are in no wise connected. Other examples are the following: *atitra*=*hantar*, taken to; *fotana*=*putar*, wound round: *fototra*=*puntat*, a stump: *haotra*=*garuq*, to scratch; *tsimondry*=*timun*, a gourd. To the Malayan *hitam*, black, corresponds the provincial Malagasy *itina*, which in Imerina is *mainity* (=ma+inty). Very often a concluding nasal syllable is wanting in the one language where it is present in the other, e.g. *anona*=*anu*, a certain one or thing; the provincial Malagasy *ratana*=*rata*, a plain; *ota*=*utañ*, sin, offence; *hono*, it is said=*kunun*, certain, definite; provincial Malagasy *finga*=*pingañ*, bowl, basin.

This phenomenon is seen in each of the languages separately, e.g. in Malagasy *ofy*, *ofo*, *ofaka* all mean to peel; *fasika* and *fasina* both mean sand; and in the Malayan *butil* and *butir* both mean a small grain.

31. In many cases dissyllabic forms have at bottom a common monosyllabic root. In the grammar of the Malayo-polynesian languages one speaks therefore quite properly of primary and secondary roots. There are in the Malayan, for example, *élih* and *tulih*, both of which mean to look round, but with some difference, and it is therefore probable that these two words have a common primary root *lih*. In this way Kern explains the Malagasy *fompona* and the Malayan *himpun*, to collect together. According to Kern, the Malayan negative prohibitive *djanan* may be analysed into *dja*+*nan*. According to § 75 one may probably analyse the Malagasy *aza*, which means the same as the above, into *a*+*za*, and thus we should get as common to both words the same primary root *za*=*dja*. To, to fulfil, verify, appears to me to be certainly the same at bottom as *téntu*, true; and the provincial Malagasy *hy*, the teeth, the gums, appears radically the same as *gigi*, a tooth, the Malagasy exhibiting here the primary roots, the Malayan the secondary. [It is not improbable that the Malagasy *hy* should be written *hihy*, as it is often very difficult even for an expert to detect the final syllable (*hy*) in such cases. The word *mandihy*, to dance, for instance, sounds almost like *mandy*.—R.B.]

32. But in other cases another explanation is possible. The second half of the roots *fasika*=*pasir*, sand, are very different. One might draw the conclusion therefrom that the Malagasy and Malayan had only the primary root, perhaps *pas*, in common. But it is also conceivable that the Malagasy has had in common with the Malayan the two-syllabled root-form *pasir*, and in its development has exchanged the original final syllable with another. This supposition gains in probability from the fact that the form *fasy*, corresponding to the Malayan *pasir*, is actually existent in the Malagasy provincial dialects.

33. I wish to propound still another question. It has been noticed that the Malagasy word *anona* is related to the Malayan *anu*. In the same way the Malagasy *inona* and the provincial Malagasy *ino*, which, what, are related; also the Macassar *pirañ* and the Kawi *pira*, how many, some. These are pronominal expressions. The concluding nasal in the Malayan relative pronoun *jan* is considered as a permanent inflective element. May the like be the case with *inona*, *anona*, *piran*?

REDUPLICATION.

34. There are different kinds of reduplication in the Malayo-polynesian languages. Of these, however, only one (the first mentioned below) is in general use in Malagasy and Malayan. Of the others we only meet with traces.

(1) The whole root is reduplicated, and therefore the one part directly follows the other. For example: Malagasy *fotsy*, white, *fotsifotsy*, whitish; Malayan *mula*, beginning, *mulamula*, at first.

(2) The first syllable is reduplicated. For example: *lahy*, male, provincial Malagasy *lalahy*, man; Malagasy *ririnina*, winter, Malayan *dinin*, cold; Malayan *bébirig*, as well as *birig-birig*, goatsucker.

(3) The second syllable is reduplicated. For example: Malagasy *bititika* as well as *bitika*, very small; *daboboka*, as well as *daboka*, to throw down, to dash; Malayan *halilintar*, as well as *halintar*, lightning.

(4) The root is reduplicated, with the exception of the last consonant, for example: the Formosan word *dara-daran*, from *daran*, way. Such instances the Malagasy only apparently has, viz. where the final consonants (or rather the syllables *ka* and *tra*) disappear in consequence of the Sandhi law, e.g. *bitsibitsika* for *bisika-bitsika*.

When in the Malayan the initial letter of the root alters in consequence of the addition of the prefix *mé+* nasal, the second root also takes the altered letter in the reduplication, thus: *mémukul*, to strike (from *pukul*, a blow), becomes *mémukul mukul*, to keep on striking. In the Malagasy, however, the original initial letter is kept, e.g. *manafosafo*, to pat, to tap, from the root *safo*, but *manaonao*, from the root *tao*, to make, follows the Malayan rule.

35. In both languages, but especially in Malagasy, roots occur only in the reduplicated form, the meaning, however, not being thereby in any way affected, e.g. Malagasy *raviravy*, to hang; Malayan *pundi-pundi*, purse. In both languages occur a considerable number of names of animals in reduplicated form, e.g. Malagasy *kodikody*, millipede; provincial Malagasy *olioly*, a kind of bird; Malayan *anai nai*, white ant; *labi-labi*, a tortoise; *lijuñ-lijuñ*, a kind of fish. In Malagasy a very great number of roots, which signify an unpleasant state of mind or a blameworthy propensity, only occur in reduplicated form, e.g. *sokisoky*, bashfulness; *rongi-rongy*, obstinacy, etc., etc.

36. Reduplication is used in both languages to differentiate homophonous roots, thus: Malagasy *bobo*, albino, *bobobobo*, to gurgle; *danga*, a kind of grass, *dangadanga*, high; Malayan *alap*, slowly, *alap-alap*, a sparrowhawk; Malagasy *farafara* = Malayan *parapara*, grating, but Malagasy *fara*, end, Malayan *para*, all together.

37. In most cases, however, reduplication modifies the meaning of a word, being either a strengthening of the same, or even a weakening, thus: Malagasy *fotsy*, white, *fotsifotsy*, whitish; *mara*, speckled, *maramara*, totally speckled; Malayan *mémukul*, to strike, *mémukul-mukul*, to continue striking, *mata*, eye, *mata-mata*, a spy.

THE ACCENT.

38. The following is the chief rule for the position of the accent both in Malayan and Malagasy: *The root has the accent on the penult.* Examples: *aho*=*aku*, I; *fana*=*panas*, warm; *tratra*=*dada*, breast, are in both languages accented on the first syllable. Although in Malagasy an *a* occurs in the weak final syllables (*na*, *ka*, *tra*), yet that does not alter the place of the accent, e.g. *lanitra*=*lanit*, heaven; *hantona*=*gantun*, to hang; *tsidika*=*tiliq*, have all the accent on the first syllable. A special rule in Malagasy is this: Words which have *e*, *ao*, or *ai* in the last syllable have the accent on the ultima, e.g. *ome* (root), *manome* (active), to give, have the accent on the *e*. A special rule in Malayan is this: When the penult has an *é* as its vowel and is at the same time open, the accent falls upon the last syllable, thus in *bénar*, true, it is the last syllable which is accented.

The Malagasy has no *é* like the Malayan, in allied words therefore it mostly uses an *e*, and this has then the accent, according to the chief rule. Thus it occurs that, in regard to the position of the accent, words like *feno*=*pénuh*, full, do not agree. But if the syllable is closed, as in *témpat*, place, *sémbah*, homage, there is a difficulty. Some authors say that the first syllable has the accent, others say the second. (Compare Van Eck, *Malayan Gram.*, 1893, p. 27, l. 3., and Gerth van Wijk, *Malayan Gram.*, 1890, middle of p. 46.) Although my knowledge of Malayan is not merely derived from books, I do not venture to express an opinion on this point. Apart from this difficulty, there is nothing further to be stated concerning the place of the accent in Malayan roots. But in the Malagasy there are not a few exceptions to the chief rule. Words with different meanings, but alike in spelling, are not seldom differentiated by the accent. *Ary*, with accent on the first syllable, denotes existence, but with accent on the second signifies "there;" so also *iry*, wish, and *iry*, yonder; *dodo*, to tread upon, and *dodo*, prodigal.

39. When a root has other syllables added to it, there results the following rule: *When in Malagasy a prefix is joined to a monosyllabic root, the root still keeps the accent.* Thus *ma*+nasal joined to the roots *la*, to deny, *lo*, to corrupt or become rotten, form the derivative verbs *manda* and *mando*, with the accent on the last syllable. In words with infixes, or where the prefix has come to form part and parcel of the root, the chief rule is followed. Thus in *imbo*, from the root *vao*, to stink (= *in*+*vao*), the penult is accented; *homana*, to eat (*h*+*om*+*ana*), from the root *hana*, is accented on the first syllable. The Malayan has nothing corresponding to this. When a suffix is added in Malagasy, the accent must be advanced according to rule. In *mamono* (root *vono*), to kill, the syllable *mo* has the accent, in *vonoína*, killed, the syllable *no* has it. The imperative *milaza*, tell, has the accent on the final, as it is contracted from *mi*+*laza*+*a*. The passive *rarana* (= *rara*+suffix *ana*) has the accent on the middle syllable. The possessive suffixes only do not disturb the position of the accent, thus *volako*, my money, is accentuated on the first syllable. As regards the Malayan, there is here again a difficulty, and it is significant that even an authority like Gerth van Wijk does not give his own opinion, but cites another philologist (p. 47). The state of the matter is this: Malayan orthography requires the vowel of the first syllable, when this has the accent and is at the same time open, to be in the root. The words *dapat* and *puput* are therefore written *dal*+*alif*+*pa*+*ta* and *pa*+*wau*+*pa*+*ta*. The words *tingal* and *lépas* are, on the other hand, written *ingl*, *lps*. Where a suffix commencing with a vowel is added, so that what was originally the last syllable, but now is the last but one, becomes open, as *puputan* from *puput*, the vowel in the first syllable disappears, but is kept in the second, thus one gets *pputan*. But philologists agree in saying that in the lengthening of the word by means of the suffix the original accent remains. Therefore *puputan* has the accent on the antepenult; and the Malagasy *hamorana* (accent on *ra*), and the Malayan *kamurahan* (accent on *mu*), liberality, from the root *murah*, consequently do not agree, in spite of the fact that the formation is perfectly identical. In the lengthening of the word the Malayan puts a secondary accent on the syllable in which the vowel is written, so that, for example, *kamurahan* has the primary accent on *mu* and a secondary accent on *ra*. This secondary accent agrees in position with the Malagasy accent. H.v.d Wall says concerning this secondary accent: "As the educated Malay has a mania for modifying the pronunciation as followed by the common people according to the written word, he emphasises in some measure the syllable which has the long vowel so that, as it were, two accents arise." But may not the truth of the matter rather be this, that these Malays are thus preserving a more ancient accentuation which agrees with the orthography and the accentuation of the Malagasy?

40. Both in Malagasy and Malayan certain phenomena may be observed which are to be referred to the influence of the accent. In some Malagasy words an *ai* in the root is weakened to *e* when the accent shifts to another syllable. Thus the root *aiky*, to consent (active *manaiky*), is in the passive *ekena*; and *kaikitra*, to bite (active *manaikitra*), is in the passive *kekerina*. In the Malayan there is, besides the word *kuliliñ* (=Malagasy *hodiñina*), round about, *keliliñ*, with the first syllable weakened. In Malagasy *ao* can only occur in an accented syllable. For this reason the Malayan *banau*, a heron, becomes *vano*; the Malayan *énkau*, thou, becomes in provincial Malagasy *angao*, the accent being in this case for some reason or other on the final syllable. The relation between *imbo* and *vao*, referred to above, is also instructive.

THE MALAYAN AND MALAGASY LETTERS AND THEIR MUTUAL EQUIVALENTS.

41. The Malayan letters are the following :—

<i>a</i>	<i>e</i>	<i>é</i>	<i>i</i>	<i>o</i>	<i>u</i>
<i>k(q)</i>		<i>g</i>		<i>ñ</i>	
<i>t</i>		<i>d</i>		<i>n</i>	
<i>tj</i>		<i>dj</i>		<i>nj</i>	
<i>p</i>		<i>b</i>		<i>m</i>	
<i>l</i>		<i>r</i>		<i>j</i>	<i>w</i>
<i>s</i>		<i>h</i>			

The *e*, which in Javanese, and often also in writings which treat of other Malayo-polynesian languages, is named *pepet*, is a short open *ö* [that is, the German *ö*, which is something like *e* in *mercy*.—R.B.]. The letters *tj*, *dj*, *nj*, are soft dentals, not sibilants. When *k* stands at the end of a word, it is an explosive guttural. In Malayan a *qaf* is often written in this case, which the Dutch mostly write as *q*, e.g. *anaq*, child. In a manner to be recommended Klinkert writes this *k* with a dot under it.

42. The letters of the Malagasy are as follows :—

<i>a</i>	<i>e</i>	<i>i(y)</i>	<i>o</i>	
<i>k</i>	<i>g</i>		<i>h</i>	(<i>n</i>)
<i>t</i>	<i>d</i>		<i>f</i>	
<i>p</i>	<i>b</i>		<i>v</i>	<i>m</i>
<i>l</i>	<i>r</i>			
<i>s</i>	<i>z</i>			
<i>j</i>				

The *o* is sounded as *u*; *y* is used for final *i*. The guttural nasal occurs only before gutturals, and in writing is not distinguished from *n*, thus: Malagasy *finga* (=Malayan *pinang*), a dish. *Z* is sounded like the English *z*; *j* is used in writing for *dz*. The Malayan and Malagasy *j* are therefore probably different. I have not given here the Arabic letters which occur in the Malayan in introduced words, as it is not necessary for my object to do so. I have, for etymological reasons, arranged the Malagasy *h* in a different series from that in which I have put the Malayan *h*.

43. Both languages have the same diphthongs; the Malayan *ai* and *au* = Malagasy *ai* (or *ay*) and *ao*.

There is yet an absence of detailed phonetic research in both languages, but this proves no obstacle to my work.

44. The Malayan vowels may be divided into four classes: (1) *i*, *e*, *ai*; (2) *u*, *o*, *au*; (3) *a*; (4) *é*. The justification of this classification I deduce from various phenomena, of which I shall in part speak now, and in part later on. In the Malagasy the fourth class is absent, and in the second *o* represents *u* and *o*. It must be remembered that pronunciation in Malayan

varies between *u* and *o*, e.g. both *upah* and *opah*, reward, are in use. In the Malagasy one often finds an *e* where the Malayan has an *i*, and *vice versa*; e.g. *firaka*=*perag* (see § 19); *helatra*=*kilat*, lightning; *menaka*=*minjaq*, oil (in Malagasy, lard). In the Malayan two pronunciations occur here and there, e.g. *bijar* and *bejar*. In the Malagasy an *i* becomes *e* when the passive ending is joined to a root which has an *i* in the second syllable, thus: the passive of *vaky*, to break, is *vakina*; but that of *vonjy*, to save, is *vonjena*; and that of *sesika*, to stuff, is *sesezana* (or *sesehana*). The two following are of special interest: the Malayan *tulan* corresponds to the Malagasy *taolana*, bone; and the Malayan *gigit* corresponds to the Malagasy *kaikitra*, to bite.

The Malayan *é* appears in the Malagasy in the first syllable of the root as *e*, e.g. *enina*=*énam*, six, Malayo-polynesian *éném*; *lefa*=*lépas*, loose, free; *feno*=*pénuh*, full; *hery*=*kéras*, strong; *tehina*=*tékan*, a stick; *telina*=*télan*, to swallow; *reny*=*denar*, to hear; *tenona*=*ténun*, to weave. Here and there an *a* occurs in Malagasy in such cases, thus: *fanina*=*pénin*, dizzy; *fano*=*pénju*, sea-turtle. In the second syllable of the root the original Malayo-polynesian *é* appears in Malagasy as *i*, and in Malayan as *a*, e.g. Malayo-polynesian *éném* is in Malagasy *enina* and in Malayan *énam*. The different etymological value of *i*, which belongs to the first-mentioned class, and of the *i* which has arisen from the Malayo-polynesian *é*, is well seen (see § 49). I may here add that the Malagasy *i* has still a third etymological value. It stands in several cases in the second syllable of the root for the Malayo-polynesian *a*, thus *dimy*, five=Malayan, Javanese, Kawi, Fijian, etc., etc., *lima*. In various Malagasy prefixes there is an *a* where there is an *é* in related Malayan prefixes (I here, however, speak with a certain amount of hesitancy), e.g. *mamana* (root *fana*)=*mémanasi* (root *panas*), to warm; *fanenitra*=*pénjñat*, a wasp, really a pricker (root in Malagasy *enitra* or *senitra*, Malayan *sénat*); compare also the Malagasy *vaventy*, great, from *venty*, substance, with the Malayan *bérantai*, in chains, from *rantai*, a chain.

45. Besides the above, vowel changes of other kinds take place, but these cases are so rare that scarcely any generalization can be drawn therefrom. The following instances may be adduced. Thus *gulin*, to roll, to roll away, and *guluñ*, to roll up, are related. Also in Malagasy the word *tsintsana*, to give forth a shrill sound, is related to and has the same meaning as *tsantsana*. The change between *a* and *u* is the most frequent. Thus, in Malagasy both *harina* and *horina* [also *horona*.—R. B.] mean to roll; *baraka* and *boroka* both mean to plunge in. The Malagasy *manta*=the Malayan *mantah*, unripe, while the provincial Malagasy *monta* means over-ripe. The Malayan *tambah* signifies to increase, *tumbuh*, to grow; *basah* means wet, *basuh*, to wash. The provincial Malagasy *tonaka*, to ripen bananas by smoking them in a rice-pit, appears in Malayan as *tanag*, to cook rice in a pot full of water [Malagasy *tanika*, to boil.—R. B.]. The Malagasy *sokosoko* appears in Malayan as *saku*, secret, not openly.

46. In several cases a vowel (*a* or *i*) appears as the first letter in Malagasy where the Malayan has no such initial vowel, for example: *akio*=*hijao*, a shark; *alaotra*=*laut*, sea; *amalona*=*maluñ*, an eel; *tasi* or *itasi*=*tasiq*, a lake. It yet needs to be proved whether these vowels are mere initial embellishments or prefixes.

47. The Consonants.

(1) The Gutturals :—

The Malayan *k* is generally represented in Malagasy by *h*, thus: *aho*=*aku*, I; *hoho*=*kuku*, finger-nail, claw; *fihitra*=*pihat*, a large kind of fly. Occasionally, however, it is represented by *k*, thus: *loka*=*luka*, wounded; *kerotra*, to shrivel up, to become smaller=*kéruat*, wrinkle, pucker.

The Malayan *g* is generally represented in Malagasy by *h*, thus: *hady*=

gali, to dig; *hantona*=*gantuh*, to hang; *hodina*=*gulin*, to turn, roll. Occasionally, however, it is represented by *g*, thus: *gaga*=*gagaq*, a crow.

(2) *The Dentals* :—

The Malayan *t* generally appears as *t* in Malagasy, occasionally as *ts*, and rarely as *d* (see § 50).

The Malayan *d* appears usually as *r* in Malagasy, thus: *afero*=*hampédu*, gall; *ary*=*ada*, to exist; *rora*=*ludah*, saliva; *orika*=*udiq*, to travel up a river. Several times it occurs as *tr*, thus: *tratra*=*dada*, breast; *trozona*, whale (*Balæna australis* or *Physeta macrocephalus*)=*dujun*, walrus; *trano*, a house=*danau*, a hut. It occasionally appears as *l*, thus: *lalina*=*dalam*, deep; *lela*=*lidah*, tongue. Still more rarely it is found as *d*, thus: *dia-volana*, moonlight=*dijan*, a candle.

(3) *The Labials* :—

The Malayan *p* usually appears as *f* in Malagasy, thus: *fify*=*pipi*, cheek; *foina*, a wheel=*pusin*, to turn; *fofotra*=*puput*, to blow bellows. It occurs occasionally as *p*, thus: *poka*=*pukul*, to give a blow to; *kapa*, to hew=*kapaq*, an axe (supposing the identifications are correct).

The Malayan *b* is represented generally in Malagasy as *v*, e.g. *radika*=*balig*, turned upside down; *vorotina* (from *vorotra*), having a rupture=*burut*, rupture, hernia; *arivo*=*ribu*, a thousand; *vaky*, a liana=*bakiq*, wild "Sirih" (?). Rarely it occurs as *b*, thus: *bitsika*=*bisiq*, to whisper; *bodo*, childlike, childish=*budaq*, a child.

(4) *The Nasals* :—

The Malayan *m* appears in the Malagasy as *m*, e.g. *mora*=*murah*, liberal. [The Malagasy *mora* rarely if ever means liberal. Its meanings are cheap, easy, gentle (disposition). The German *freigebig*, which the author gives, is therefore scarcely correct for the Malagasy word, although it may be for the Malayan.—R. B.]

The Malayan *n* appears in Malagasy as *n*, e.g. *fana*=*panas*, hot.

The Malayan *ñ* appears in the Malagasy as *n* before gutturals, although it is written simply *n*, thus: *fiŋa*=*piŋan*, a basin, dish; but in other cases it is represented by *n*, thus: *anina*=*anin*, wind; *lanitra*=*lanit*, heaven.

[In regard to *n* and *ñ* it may be well to point out that there are the three following sounds in Malagasy :—

Provincial	{	Hova {	<i>n</i> simply, as in <i>tin</i> .
			<i>ng</i> , as in <i>single</i> (= <i>ng</i> + <i>g</i>).
			<i>n(g)</i> , as in <i>singing</i> (= <i>ng</i> simply).

The Malayan *n* apparently is meant to represent the last of these, which is not heard in the Hova dialect, but is universal in the provinces. Thus *anao* is in provincial Malagasy *an(g)ao*. The *g* is usually put in brackets in these cases, which are extremely frequent. See ANNUAL XVII. pp. 58, 59.—R.B.]

(5) *The Liquids* :—

The Malayan *l* appears in Malagasy as *l*, e.g. *lanitra*=*lanit*, heaven, sky; also as *d*, e.g. *dimy*=*lima*, five; and occasionally as *r*, e.g. *rora*=*ludah*, saliva. (See § 49.)

The Malayan *r* appears in Malagasy as *r*, thus: *arivo*=*ribu*, a thousand; *zoro*=*pinjuru*, corner; *farafara*=*parapara* (§ 36); also as *z*, thus: *zato*=*ratus*, a hundred; *ozatra*=*urat*, vein, sinew; *vesatra*=*bérat*, heavy. Sometimes it disappears, e.g. *tao*, to make=*taruh*, to set, place, put [sometimes *tao* means put, as "efa natao teo izy"—it was put there.—R.B.]; *haotra*=*garug*, to scratch; *vao*=*béharu*, new.

The Malayan *j* usually exists in Malagasy as *z*, for instance: *izy*=*ija*, he; *lazo*=*laju*, to wither; *hazo*=*kaju*, wood. It occasionally disappears, as *riana*, a cataract=*rijam*, rapids; *tsioka*=*tijup*, to blow. It occurs as *h* in *niho*=*nijur*, cocoa-nut palm.

The Malayan *w* is written *v* in Malagasy, for example: *avana*, rainbow= *awan*, cloud; or it disappears, as *toaka*=*tuwaq*, spirituous liquor; *voay*=*buwaja*, crocodile.

(6) *The Sibilant s* :—

The Malayan *s* generally occurs in Malagasy as *s*, thus: *isy*, to exist, to be within= *isi*, contents; *safotra* (from which comes *saforana*, to be covered with water)=*saput*, covered (with clouds, for example); *asa*=*asah*, to sharpen. The *s* pretty often disappears, e.g.: *ony*=*suñai*, a river; *elana*=*sélan*, intermediate space; *vy*=*béti*, iron. Here and there it is represented by *z*, as *lezolezo*, faint, weary= *lésu*, tired; provincial Malagasy *landaizana*=*landasan*, anvil. Rarely it occurs as *h*, thus: *horaka*=*surag*, to clamour; also *ts*, as *bítsibítsika*=*bísig*, to whisper; as *r*, thus: *rombina*, having gaps, hare-lipped= *sumbiñ*, jagged, *mulut sumbiñ*, hare-lip.

(7) *The Aspirate h* :—

The Malayan *h* disappears in Malagasy, for instance: *zaitra*=*djahit*, to sew; *fona*=*pohon*, to entreat, beg pardon; *orana*=*hudjan*, rain.

(8) *The Combinations tj, dj, and nj* :—

The Malayan *tj* appears in Malagasy as *ts*, thus: *tsatsaka*=*tjtjtjaq*, a lizard; as *t*, thus: *totoka*, the beak of a bird= *tjutuq*, to pick, peck; as *s*, thus: *sofina*, ear= *tjupin*, earlap; as *j*, thus: *henjana*=*kéntjan*, tense, strong. The word for "little" is in Malayan *kétjil* or *kétjiq*, but in Malagasy *kely*. In provincial Malagasy *kitily* signifies the little finger. Are these words connected?

The Malayan *dj* appears in Malagasy as *j*, for example: *tsinjo*=*tindjau*, to see from afar; *tanjona*=*tandjun*, a promontory. [The *j* in Malagasy is, however, sounded as *dz*, as noticed above.—R.B.] It is also found as *ts*, for instance: *maitsa* (*ma*+*itsa*)= *hidjau*, green; as *s*, for instance: *asa*=*adjaq*, to spur on, to invite; as *z*, for example: *tozo*=*tudju*, a followed course; *zary*=*djadi*, to become; *zaitra*=*djahit*, to sew; *zoro*=*péndjuru* (*pén*+*djuru*), corner; as *dr*, thus: *tondro*=*tundjuq*, to point; as *r*, thus: *orana*=*hudjan*, rain; as *l*, thus: *lalana*=*djalan*, way, road; as *h*, thus: *vihy*=*bidji*, stone of a fruit.

The Malayan *nj* occurs in Malagasy as *n*, for example: *many*=*anjir*, stinking; *fanenitra*=*pénjénat*, a wasp; *niho*=*njijur*, cocoa-nut palm; *fano*=*pénju*, sea-turtle.

(9) *Nasal+Explosive* :—

In several cases the Malagasy has no nasal where the Malayan has one, for instance: *afero*=*hampédu*, gall; *efatra*=*émpat*, four; *folotra*=*puntat*, stump; *akatra*=*ankat*, to raise; *toko*=*tunku*, a trivet; *takatra*, to reach, attain to= *tankap*, to comprise, lay hold of ("fassen"). It should be observed that in such cases *k* is not changed to *h*. Besides the above, the nasal+explosive is represented in Malagasy as follows :—

The Malayan *nk* appears in Malagasy as *ng*, thus: *bingo*, bow-legged= *benkoq*, bent; provincial Malagasy *angao*=*énkau*, thou.

The Malayan *ng* occurs as *ng*, thus: *finga*=*píngan*, bowl, basin; *dingi*=*tiñgi*, high.

The Malayan *nt* appears as *nt*, for example: *dintali*=*ntah*, a leech; *hantona*=*gantun*, to hang; as *nts*, e.g. *rantsana*=*rantiñ*, a branch; as *ndr*, e.g. *andry*=*nanti*, to wait (that is, provided the identification is correct).

The Malayan *nd* appears usually as *ndr*, thus: *findra*=*pindah*, to pass over; *tandra*=*tanda*, a mole on the skin; *tsindry*=*tindih*, to press; less frequently as *nd*, thus: *landaizana*=*landasan*, anvil.

The Malayan *mp* appears generally as *mp*, for example: *rompotra*, manioc leaves= *rumpat*, grass; *ompa*, to revile, curse= *sumpah*, to curse, swear; *ampy*=*sampai*, enough; more rarely as *mb*, e.g. *dombo*=*tumpul*, blunt; *rombaka*, to snatch violently from= *rompaq*, prey, robbery.

The Malayan *m̄b* is represented in Malagasy by *m̄b*, e.g. *rombina*=*sumbini*, hare-lipped; *rambo*, a tail, a fringe=*rambu-rambu*, fringe; also as *m* in *dima*, to draw water=*timba*, a bucket.

48. In the above section (§ 47) I have given a list of the letters in Malagasy which are the equivalents of the Malayan. The question now is, what is the cause which underlies these phenomena? Where only one Malagasy letter corresponds to one Malayan letter, no remark is necessary. Only in a few cases, however, is the relationship so simple as this, as in the nasals, including *nj*, and in *h*. The relationship is the most complicated and obscure in the cases of *tj* and *dj*.

I am only able to give some light on this obscure point in regard to a few letters, viz. *l*, *t*, *k*, *é*.

49. The Malayan *l* appears in Malagasy as *d* or as *l*. In regard to this the following is the law: *The Malayan l appears in Malagasy as d, when in both languages an i follows; otherwise it appears as l.*

(i.) *Dimy*=*lima*, five; *idina*, to descend, to pour out=*hilir*, to go down stream; *fody*, to return, turn back=*pulih*, to restore, replace; *fady*=*pêmali* (*pé*+nasal+*pali*), taboo; *fady*=*pilih*, to choose; *hady*=*galy*, to dig; *hodi-dina*=*kulilin*, round about; *dinta*=*lintah*, a leech; *sodina*=*sulin*, a flute; *tadiny*, foramen of the ear=*téliña*, ear; *tsidika*=*titiq*, to peep into (§ 50); *vidy*, price, to buy=*béli*, to buy; *vadika*=*balig*, to turn over.

(ii.) *Saly*=*salai*, to roast; *lalitra*=*lalat*, a fly; *folo*=*puluh*, ten; *lanitra*=*lanit*, sky, heaven; *lomotra*, an alga=*lumut*, moss, mildew; *alaotra*, =*laut*, sea; *elana*=*sélan*, interspace; *telina*=*télan*, to swallow; *lena*, moist, wet=*leñas*, damp; *lela*=*lidah*, tongue.

The following pairs are instructive: *folo*=*puluh*, ten; *fody*=*pulih*, to return; *holatra*=*kulat*, a fungus; *hoditra*=*kulit*, skin, leather; *idina*=*hilir* (the *i* in question belongs to the *i* group); and *telina*=*télan* (the *t* has arisen from *é*).

In some cases there is an *r* where, according to (ii), an *l* would be expected, thus: *rora*=*ludah*, saliva.

Two exceptions to (i) occur, viz. *lindona*=*lindun*, to cover, to shadow; and *atody*=*télur*, an egg. But *lindona* is provincial Malagasy, and in the meantime is perhaps a doubtful instance; and as for the word for egg, it appears in very different forms in the various Malayo-polynesian languages.

50. The Malayan *t* appears in Malagasy as *ts* when it precedes an *i* and is at the same time in the accented syllable; in other cases it remains as *t*, or very occasionally appears as *d*; but in the final syllable it becomes *tra*; examples:—

(i) The Malayan *t* becomes *ts* when it comes before an *i* and is also in the accented syllable, e.g. *tsy*=*ti*, not; *tsihy*=*tikar*, a mat; *tsindry*=*tindih*, to press; *tsioka*=*tijup*, to blow; *tsinjo*=*tindjan*, to look at a distant object; *tsimondry*=*timun*, a cucumber. [In Malagasy the word is reduplicated, *tsimondrimondry*, and is the name of a species of *Euphorbia*.—R.B.]

(ii) The Malayan *t* remains *t* before any other vowel in the accented syllable, e.g. *tozo*=*tudju*, direction, course; *toaka*=*tuwag*, spirituous liquor; *taona*=*tahun*, year; *tenona*=*ténun*, to weave.

(iii.) The Malayan *t* remains *t* before a vowel in a non-accentuated syllable, even when this is *i*, e.g. *maty*=*mati*, to die; *aty*, the liver, inside=*hati*, heart, interior; *tety*, to walk through=*titi*, a narrow way over something; *hitikitika*=*gélitiq* (*g*+*él*+*itiq*), to tickle; *vato*=*batu*, a stone; *dinta*=*lintah*, a leech; *fofotra*=*puntat*, a stump; *fofana*=*putar*, to twist round; *zato*=*ratus*, a hundred.

(iv.) The Malayan *t* becomes *d* only seldom, examples: *didy*=*titah*, to command; *dingy*=*tingi*, high; *dombo*=*tumpul*, blunt.

(v.) The Malayan *t* appears as *tra* in final syllables (§ 54).

Against (i) I know of two exceptions, which, however, may probably be reduced to one. The Malayan *tipsis*, thin, appears in Malagasy as *tify*. Marre and Richardson also consider *tilitily*, a watchman, a patrol=*tiliq*. But to this it may be objected that there is also a Malagasy word *tsidika*, to peep in, and this appears to me more correctly the equivalent of *tiliq*. It is precisely because of the occurrence of *l* in both words that the identification of *tilitily* with *tiliq* is improbable (see law, § 49). *Tete* and *titig*, to drop, and the above mentioned *tety*=*titi* (the *t* of the second syllable has already been treated of), where the Malagasy has another vowel, form no exceptions.

Against (ii.) *tsabo*=*tabur* might be mentioned as an exception. The former signifies a rice-field, a field, a plantation, the latter to sow seed. But the identification is not certain, and *tsabo* is, moreover, provincial Malagasy.

To (iii.) I know four exceptions: on the one side *fotsy*=*putih*, white, and *voavitsy*=*buwah-bétis*, calf of the leg; and on the other side *latsaka*, to fall down=*létaq*, to lay down, and *rantsana*=*rantiñ*, a branch. The first pair have considerable weight, as the number of cases which form the rule is not great.

(iv.) is quite uncertain.

51. In § 47 (1) it was shewn that the Malayan *k* becomes *h* in Malagasy. Only in extremely few instances the *k* is kept, e.g. *loka*=*luka*. In the same way the possessive suffix *ko*=*ku*, my, and the copulative conjunction *ka*=*maka* (= *ma*+*ka*) keep the *k*. There are, however, in many Malayo-polynesian languages together with *ku* also a *ñku*, and the Kawi possesses the above conjunction in the form *ñkâ*. The *k* therefore may have been here preserved in Malagasy according to (§ 47) (9) Nasal+Explosive, and possibly in the above cases dialectic influences may have come into play (§ 2).

52. Whenever the Malayan *pepet* is represented in Malagasy by *a* or more frequently *e*, it should be remembered that even within the Malayan itself *é* and *a* are interchangeable in a considerable number of words, e.g. *rêkan* and *rakana*, a commercial place; *sariñ* and *sériñ*, to turn; *dêkap* and *dakap*, to embrace.

53. We have seen above that the Malayan *r* sometimes remains in Malagasy, sometimes disappears, and sometimes occurs as *z*. Now we know very well, as a consequence of investigations which have thoroughly substantiated the first law of Van der Tuuk, the fate of the *r* in the different Malayo-polynesian languages, but after what rules the above mentioned phenomena entered into the Malagasy language I cannot say.

THE LAWS IN REGARD TO THE FINAL SYLLABLE.

54. The Consonants in the final Syllable:—

However difficult it may be to understand the laws regulating the representatives of the Malayan consonants in Malagasy in the first or in an inclosed syllable, the law regulating them in the last syllable is perfectly clear, it is this: *Nasals and sharp mutes remain; all other consonants disappear.*

All Malayan nasals appear in Malagasy as *n* and have an *a* as their complementary letter, thus: *alona*, wave=*alun*, to roll towards one (referring to the waves); *hantona*=*gantun*, to hang; *lalina*=*dalam*, deep. *K(g)* appears as *ka*, e.g. *masaka*=*masaq*, cooked. [There appears to be no English word which exactly equivalent to *masaka*. *Cooked* is vague, as are also *ready* and *done enough*. When a thing is *masaka*, it has been cooked long enough and is ready for table. It is used also of *ripe* fruit.—R.B.] *T* appears as *tr*, e.g. *lanitra*=*lanit*. *P* occurs either as *ka* or as *tra*, e.g. *tototra*=*tutup*, covered over [*tototra* more precisely means *filled in*, as a hole.—R.B.]; *takatra*=*tankap*, to reach, attain; *tsioka*=*tijup*, to blow

(used of a flute, the wind, etc.); *atrika*, to face, to meet, to stand in front of = *hadap*, before, in presence of, to stand in front of; *sisika* = *sisip*, to push in.

The remaining consonants which may appear in Malayan final syllables, viz. *s*, *r*, *l*, *h*, disappear in Malagasy, e.g. *asa* = *asah*, to sharpen; *folo* = *puluh*, ten; *lefa* = *lépas*, loose; *zato* = *ratus*, a hundred; *dombo* = *tumpul*, blunt; *niho* = *njijur*, cocoa-nut palm; *many* = *anjir*, to stink; provincial Malagasy *dia* = *lijar*, wild.

55. The Vowels in the final Syllable:—

The original Malayo-polynesian *i* in the final syllable is represented in Malagasy by *i* and in Malayan by *a*. Instances are very numerous; thus the original Malayo-polynesian *énim*, six, is found in Malagasy as *enina* and in Malayan as *énam*; *télin*, to swallow, occurs in Malagasy as *telina* and in Malayan as *télan*. Otherwise the Malayan vowels occur unchanged in Malagasy, e.g. *aho* = *aku*, I; *dingidingy* = *tingi*, high; *farafara* = *parapara* (§ 36).

56. The Diphthongs in the final Syllable:—

The original Malayo-polynesian *ui* appears in Malagasy as *o*, in the Malayan as *i*. Thus the primitive form for *fire* must have been *apui*, and indeed a good many of the Malayo-polynesian languages, as, for instance, the Kawi, have preserved this form, while the Malagasy has *afu* and the Malayan *api*. In the same way the original Malayo-polynesian *mandui* appears in Malagasy as *mandro* and in the Malayan as *mandi*, to bathe. The Malayan *ai* occurs in Malagasy as *i*, e.g. *oni* = *sunai*, a river; *saly* = *salai*, to roast, to smoke (fish, etc.); *amby* = *sampai*, sufficient. The Malayan *au* appears in Malagasy as *o*, e.g. *maitso* (= *ma* + *itso*) = *hidjau*, green; *vano* = *banau*, a heron; *rano*, water = *danau*, standing water; *trano*, house = *dañau*, hut. The Malayan *aja* occurs as *ai*, e.g. *lay* = *lajar*, a sail; *voay* = *buwaja*, a crocodile; *hay*, to be able = *kaja*, rich.

57. When a suffix is attached, and thus the final syllable becomes an inclosed one, the following phenomena are to be seen:—

When the final syllable becomes an inclosed one, the rules already given (§ 47-49) are followed, thus the passive of *rombaka*, to snatch violently from (= Malayan *rompaq*, prey, plunder), becomes *rombahina*, with *h* taking the place of the Malayan *k* (*g*) according to rule. The passive of *hihy* = *kikis*, to scrape off, becomes *hikisana*, thus preserving the Malayan *s*. From *enina* = *énam*, six, is obtained *enemina*, divided into six parts. The imperative of *velona* = Dayak *belum*, living, is *veloma*. *Tsioka* = *tijup*, and *tototra* = *tutup* (§ 54), become in the passive *tsiofina* and *totofana*, the Malayan *p* becoming *f* according to rule. In very many cases, however, the "language spirit" ("*Sprachgeist*") has forgotten the original etymological connection and deals now with the new root which is produced by the laws regulating the final syllables, e.g. the imperative derived from the root *fana* = *panas* is not *mamanasa*, but *mamanà* (= *mamana* + *a*, with the accent on the last *a*). Very instructive are double forms like the imperative passive *alefaso* or *alefao*, from *lefa* = *lépas*; also the Imerina passive *atrehina* and the provincial Malagasy passive *atrefina*, from *atrika* = *hadap*. As regards the final consonants *r*, *l*, and *h*, they appear to have disappeared without leaving even a trace behind.

With roots ending in *tra* the *t*, which one might expect to be kept when a suffix is appended, is only rarely preserved; *soratana*, written, from *soratra*, is an instance. In most cases *r* appears, e.g. *samborina*, seized, from *sambotra*, to seize.

In no part of Malagasy word-formation has analogy had such influence as in the addition of a suffix. Already we have mentioned *lavina* as an analogous form to *lovina*; *hirika* = *gereq*, to bore a hole, has in the passive both *hirihana* and *hirifana*; the letter *s* (or *z*) especially very considerably prevails when a suffix is added.

THE SANDHI LAW.

58. The Malayan language possesses scarcely anything which may be called Sandhi. In a few cases contraction of similar vowels occurs in compounds, e.g. *harini*, to-day, from *hari*, day+*ini*, this; *bagitu*, so, from *bagai*, kind+*itu*, this. But there are also cases like *kaadaan* (four syllables), existence, from *ada*, to exist. From *buwat* is derived the verb *mimpirbuwatkan*, to manufacture, and here we have *t* and *k* coming one immediately after the other, which is never the case in a root. The Malagasy, on the other hand, is very sensitive in regard to matters of this kind. In it similar vowels are contracted, e.g. *lany*+suffix *ina* give *lanina* (accented on the *i*), used up; from *mora* is derived *hamorana* (accented on the last *a* but one, therefore= *ha+mora+ana*).

Very complicated are the Sandhi phenomena in Malagasy consonants. Only such combination of consonants is permitted as is allowed in a root. The combination *nl* is never allowed in a root, therefore, for instance, from *an+lalana*, is formed *an-dalana*. The Sandhi law occurs

(i.) When a prefix ending in a consonant is appended to the root, e.g. *man+la* become *manda*, to deny.

(ii.) When the preposition *an* stands before a word, e.g. *an+saha* become *an-tsaha*, in the fields.

(iii.) When in compounds the connecting letter *n* is employed, e.g. *voa+n+fo* become *voampo* ("heartfruit"), the name of a small shrub.

(iv.) When, in compounds, the first part is a word which ends in one of the so-named weak terminals *tra*, *ka*, and *na*. When this is the case, the language looks upon the words as though they ended in *t*, *k*, and *n* respectively; e.g. *sarotra*, difficult+*vidy*, price, become *saro-bidy*, dear; *zanaka*, child+*hazo*, a tree, become *zana-kazo*, a young tree.

(v.) When a possessive suffix is added to a word ending in *tra*, *ka*, or *na*; e.g. *satroka*, hat+*ny*, his, become *satroky* or *satrony*.

CONTRACTION.

59. Contraction is spoken of in the Malayo-polynesian languages when, for example, the Malayan *tuwan* and *tun*, sir, master, stand near one another. If this view should prove itself correct, then I suppose all such cases as *ravina=daun*, a leaf, belong thereto.

(To be concluded in the next number.)

Translated from the German of

DR. RENWARD BRANDSTETTER

By R. BARON (Ed.).

A CORRECTED LIST OF THE BIRDS OF MADAGASCAR,

ACCORDING TO THE NOMENCLATURE AND ARRANGEMENT OF
THE MOST EMINENT ENGLISH ORNITHOLOGISTS.

Prefatory Note.—Readers of the ANNUAL will have remarked that in the four numbers of the magazine from 1889–1892 I contributed papers on the Birds of this island. In the Tabular Lists which accompanied these papers I followed the nomenclature adopted by M. Alfred Grandidier; while in the arrangement of birds into families and groups, that of Dr. R. Bowdler Sharpe, in *Cassell's Natural History* (vol. ii., new. ed.), was followed. During my furlough in England (1890–1891) these papers were reproduced in *The Ibis*, with little alteration by myself except a few slight corrections and some additions; but a good many alterations were made by the editors, Messrs. Sclater, Seebohm, and Salvin, in the nomenclature and classification of these Malagasy birds. Thinking therefore that it might be of service to some of our readers interested in the ornithology of Madagascar to have a corrected list, according to the judgment of English naturalists, I have transcribed the tables given in *The Ibis*, omitting native names, etc., which can be seen in the four numbers of the ANNUAL above mentioned. As in the original papers, the names in capitals show the birds peculiar to Madagascar.—JAMES SIBREE (ED.).

ORDER I.—ACCIPITRES.

SUB-ORDER FALCONES.

Rayed Gymnogene	<i>Polyboroides</i> MADA- GASCARIENSIS
Long-legged Harrier	<i>Circus MACROSCÉLES</i>
Henst's Goshawk	<i>Astur HENSTI</i>
Frances's Goshawk	<i>Astur FRANCESI</i>
Morell's Goshawk	<i>Astur MORELLI</i>
Madagascar Sparrow Hawk	<i>Accipiter</i> MADAGAS- CARIENSIS
Short-winged Buzzard	<i>Buteo BRACHYPTERUS</i>
Noisy Sea Eagle	<i>Haliaeetus VOCIFEROI-</i> DES
Madagascar Serpent Eagle	<i>Eutriorchis ASTUR</i>
Egyptian Kite	<i>Milvus aegyptius</i>
Andersson's Pern	<i>Machærhamphus An-</i> derssoni
Smaller Peregrine Fal- con	<i>Falco minor</i>
Stripe-bellied Falcon	<i>Falco semiventris</i>
Grey Falcon or Hobby	<i>Falco concolor</i>
Madagascar Cuckoo Falcon	<i>Baza</i> MADAGASCA- RIENSIS
Newton's Kestrel	<i>Tinnunculus</i> NEW- TONI

SUB-ORDER STRIGES.

Cape Long-eared Owl	<i>Asio capensis</i>
Madagascar Long- eared Owl	<i>Asio</i> MADAGASCARI- ENSIS
Madagascar Hawk Owl	<i>Ninox superciliosus</i>
Madagascar Scops Owl	<i>Scops RUTILUS</i>
Common Barn Owl	<i>Strix flammea</i>
Soumagne's Owl	<i>Heliodilus</i> SOUMA- GNEI.

ORDER II.—PICARLÆ.

SUB-ORDER ZYGODACTYLE.

FAMILY PSITTACI.

Sooty Parrot	<i>CORACOPSIS</i> OBSCU- RA
Black Parrot	<i>CORACOPSIS</i> NIGRA
Grey-headed Parra- keet (or Love-bird)	<i>Agapornis</i> MADAGAS- CARIENSIS

FAMILY CUCULIDÆ.

Grey-headed Cuckoo	<i>Cuculus poliocephalus</i>
Madagascar Lark - heeled Cuckoo	<i>Centropus</i> TOULOU
Reynaud's Coua	COUA REYNAUDI
Crested Coua	COUA CRISTATA
Tawny-rumped Coua	COUA PYRROPYGIA
Verreaux's Coua	COUA VERREAUXI
Blue Coua	COUA CÆRULEA
Serres's Coua	COUA SERRIANA
Delalande's Coua	COUA DELALANDEI
Giant Coua	COUA GIGANTEA
Red-capped Coua	COUA RUFICEPS
Olive-capped Coua	COUA OLIVACEICEPS
Running Coua	COUA CURSOR
Coquerel's Coua	COUA COQUERELLI

SUB-ORDER FISSIROSTRES.

FAMILY ALCEDINIDÆ.

Crested Kingfisher	<i>Corythornis</i> CRISTA- TA
Rose-cheeked King- fisher	<i>Ispidina</i> MADAGAS- CARIENSIS

FAMILY UPUPIDÆ.

Fringed Hoopoe	<i>Upupa</i> MARGINATA
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FAMILY MEROPIDÆ.

Madagascar Bee-eater | *Merops superciliosus*

FAMILY CORACIIDÆ.

Kirombo Roller	LEPTOSOMA DISCO-
	LOR
Lesson's Ground-Roller	BRACHYPTERACIAS
	LEPTOSOMUS
Scaly Ground-Roller	GEOBIASTES SQUA-
	MIGERUS
Crossley's Ground-Roller	ATELORNIS CROSS-
	LEVI
Pitta-like Ground-Roller	ATELORNIS PITTOI-
	DES
Bread-billed Roller	EURYSTOMUS GLAU-
	CURUS

ORDER III.—PASSERES.

FAMILY CORVIDÆ.

White-necked Crow | *Corvus scapularis*

FAMILY ARTAMIDÆ.

Bernier's Swallow-Shrike	ORIOLIA BERNIERI
White-headed Swallow-Shrike	ARTAMIA LEUCO-
	CEPHALA
Ann's White-headed Swallow-Shrike	ARTAMIA ANNÆ
Two-coloured Swallow-Shrike	CYANOLANIUS BICO-
	LOR
Red Swallow-Shrike	LANTZIA RUFA
Green Straight-winged Swallow-Shrike	LEPTOPTERUS VIRI-
	DIS

FAMILY DICURIDÆ.

Fork-tailed Drongo | *Edolius forficatus*

FAMILY CAMPOPHAGIDÆ.

Ashy Cuckoo-Shrike | *Graucalus cinereus*

FAMILY MUSCICAPIDÆ.

Brown-tailed Flycatcher	NEWTONIA BRUN-
	NEICAUDA
Ward's Flycatcher	PSEUDOBAS WARDI
Changeable Flycatcher	<i>Terpsiphone mutata</i>

FAMILY TURDIDÆ.

Imerina Thrush	<i>Cossypha imerina</i>
Sharpe's Thrush	<i>Cossypha sharpei</i>
Delicate Warbler	EROESSA TENELLA
Larger Delicate Warbler	EROESSA MAJOR
Madagascar Warbler	ELLISIA MADAGASCARIENSIS
Fern Warbler	ELLISIA FILICUM
Lantz's Warbler	ELLISIA LANTZII
White-browed Warbler	COPSYCHUS ALBOSPECULARIS
Magpie Warbler	COPSYCHUS PICA
Newton's Warbler	CALAMOHERPE NEWTONI
Crossley's Warbler	MYSTACORNIS CROSSLEYI
Madagascar Stonechat	<i>Pratincola sybilla</i>
Yellow-browed Warbler	CROSSLEYIA XANTHOPHRYS

FAMILY TIMELIIDÆ.

Madagascar Bulbul	<i>Hypsipectes madagascariensis</i>
Edwards's Bulbul	TYLAS EDUARDI
Madagascar Bulbul	TYLAS MADAGASCARIENSIS
Belted Bulbul	TYLAS STROPHIATUS
Madagascar Babbling Thrush	OXYLABES MADAGASCARIENSIS
Ashy-crown Babbling Thrush	OXYLABES CINEREICEPS
Bernier's Babbling Thrush	BERNIERIA MADAGASCARIENSIS
White-eyed Babbling Thrush	BERNIERIA ZOSTEROPS
Madagascar White-eye	<i>Zosterops madagascariensis</i>
Madagascar Fantail Warbler	<i>Cisticola madagascariensis</i>
Brown Feather-tailed Warbler	DROMÆOCERCUS BRUNNEUS
Seeborn's Feather-tailed Warbler	DROMÆOCERCUS SEEBORNI
Grandidier's Tailorbird	<i>Orthotomus grandidieri</i>

FAMILY LANIIDÆ.

Madagascar Butcherbird	CALICALICUS MADAGASCARIENSIS
Curved-beaked Butcherbird	VANGA CURVIROSTRIS
Lafresnay's Butcherbird	XENOPIROSTRIS LAFRESNAYI
Van Dam's Butcherbird	XENOPIROSTRIS DAMI
Pollen's Butcherbird	XENOPIROSTRIS POLLENI

FAMILY PARIDÆ.

Coral-billed Nuthatch | *Hypositta coralirostris*

FAMILY NECTARINIIDÆ.

Sôimanga Sun-bird	NECTARINIA SOIMANGA
Noted Sun-bird	<i>Nectarinia notata</i>
Glittering Sickle-billed Sun-bird	NEODREPANIS CORUSCANS

FAMILY HIRUNDINIDÆ.

Madagascar Swallow	<i>Phedina madagascariensis</i>
Cowan's Sand-Martin	<i>Cotile cowani</i>

FAMILY MOTACILLIDÆ.

Yellow-bellied Wagtail | *Motacilla flaviventris*

FAMILY PLOCEIDÆ.

Sakalava Weaver-bird	<i>Ploceus sakalava</i>
Pensile Weaver-bird	<i>Ploceus pensilis</i>
Madagascar Cardinalbird	FOUDIA MADAGASCARIENSIS
Dwarf Rice-bird	<i>Spermestes nana</i>

FAMILY STURNIDÆ.

Madagascar Starling	HARTLAUBIA MADAGASCARIENSIS
Robed Starling	FALCUTIA PALLIATA

FAMILY EURYCEROTIDÆ.Prévost's Helmet-bird | *EURYCEROS PREVOSTI***FAMILY ALAUDIDÆ.**Hova Lark | *Alauda HOVA***FAMILY PHILEPITTIDÆ.**Boddaert's Philepitta | *PHILEPITTA JALA*
Schlegel's Philepitta | *PHILEPITTA SCHLEGELI***ORDER IV.—COLUMBÆ.****FAMILY COLUMBIDÆ.**Madagascar Pigeon | *FUNINGUS MADAGASCARIENSIS*
Southern Pigeon | *Treron australis*
Painted Dove | *Turtur PICTURATUS*
Cape Dove | *Ena capensis***ORDER V.—GALLINÆ.****FAMILY NUMIDIDÆ.**Mitre Guinea-fowl | *Numida MITRATA***FAMILY TETRAONIDÆ.****SUB-FAMILY PEBDICINÆ.**Striped Partridge | *MARGAROPERDIX STRIATA*
Common Quail | *Coturnix communis***FAMILY PTEROCLIDÆ.**Masked Sand-Grouse | *Pterocles PERSONATUS***FAMILY TURNICIDÆ.**Black-necked Bustard-Quail | *Turnix NIGRICOLLIS***ORDER VI.—GRALLÆ.****FAMILY PARRIDÆ.**White-necked Jacana | *Parra ALBINUCHA*
African Jacana | *Parra AFRICANA***FAMILY RALLIDÆ.**African Rail | *Rallus gularis*
Madagascar Rail | *Rallus MADAGASCARIENSIS*
Grey-faced Rail | *Camirallus GRISEIFRONS*Dwarf Crake | *Porzana pygmaea*
Waters's Crake | *Porzana WATERSI*
Island Crake | *Porzana INSULARIS*
Madagascar Water-hen | *Gallinula chloropus*
Blue-backed Porphyrio | *Pyrrhorhoa*
Allen's Porphyrio | *Porphyrio smaragdinus*
Crested Coot | *Porphyrio Alleni*
| *Fulica cristata***FAMILY SCOLOPACIDÆ.**Whimbrel | *Numenius phaeopus*
Madagascar Curlew | *Numenius arquata*
| *MADAGASCARIENSIS*
Cape Painted Snipe | *Rhynchaea capensis*
Bernier's Snipe | *Gallinago BERNIERI*
Curlew Sandpiper | *Tringa subarquata*Common Sandpiper
Bar-tailed Godwit
Black-winged Stilt-Plover
Common Avocet*Tringoides hypoleucus*
Limosa lapponica
Himantopus candidus
*Recurvirostris avocetta***FAMILY CHARADRIIDÆ.**Turnstone | *Streptilas interpres*
Geoffroy's Plover | *Agialitis Geoffroyi*
Delicate Plover | *Agialitis TENELLA*
Three-collared Plover | *Agialitis tricoloris*
Cattle-loving Plover | *Agialitis pecuaria*
Grev Plover | *Squatarola helvetica*
Madagascar Pratincole | *Glareola OCULARIS***FAMILY MESITIDÆ.**Variegated Mesite | *MESITES VARIEGATA*
Uniform Mesite | *MESITES UNICOLOR***ORDER VII.—HERODIONES.****FAMILY ARDEIDÆ.**Common Heron | *Ardea cinerea*
Black-necked Heron | *Ardea atricollis*
Humblot's Heron | *Ardea HUMBLOTI*
Purple Heron | *Ardea purpurea*
Giant Heron | *Ardea goliath*
Great White Heron | *Ardea alba*
Little Egret | *Ardea garzetta*
White-winged Heron | *Ardea gularis*
Slaty Heron | *Ardea ardesiaca*
Squacco Heron | *Ardea buloides*
Buff-backed Heron | *Ardea bulbus*
Ida's Egret | *Ardea IDÆ*
Dwarf Heron | *Ardea podiceps*
Black-capped Heron | *Butorides atricapillus*
European Night-Heron | *Nycticorax griseus***FAMILY CICONIIDÆ.**Tufted Umbre | *Scopus umbretta*
Madagascar Open-billed Stork | *Anastomus MADAGASCARIENSIS*
African Tantalus | *Pseudotantalus ibis***FAMILY PLATALEIDÆ.**Slender-billed Spoon-bill | *Platalea tenuirostris*
Glossy Ibis | *Plegadis falcinellus*
Bernier's Ibis | *Ibis BERNIERI*
Crested Ibis | *LOPHOTIBIS CRISTATA***FAMILY PHŒNICOPTERIDÆ.**Scarlet Flamingo | *Phœnicopterus erythraeus***ORDER VIII.—ANSERES.****FAMILY ANATIDÆ.**Meller's Wild Duck | *Anas Melleri*
Red-billed Wild Duck | *Anas erythrorhynchos*
Bernier's Wild Duck | *Anas BERNIERI*
Dwarf Goose | *Nettapus auritus*
Widowed Tree-Duck | *Dendrocygna viduata*
Larger Tree-Duck | *Dendrocygna major*
African Humped Duck | *Sarcidornis africana*
White-eyed Duck | *Fuligula nyroca*
White-backed Diving Duck | *Thalassornis leucanola*
Hottentot Teal | *Querquedula hottentota*

ORDER IX.—STEGANOPODES.

FAMILY FRIGATIDÆ.

Lesser Frigate-bird | *Fregata minor*

FAMILY PHAETHONTIDÆ.

White Tropic-bird | *Phaethon candidus*
Red-tailed Tropic-bird | *Phaethon rubricauda*

FAMILY PELECANIDÆ.

Red-backed Pelican | *Pelecanus rufescens*
Booby Gannet | *Sula piscator*
Black-bellied Dartar | *Plotus melanogaster*
African Cormorant | *Phalacrocorax africanus*Thin-billed Noddy
Stupid Noddy
Dusky-headed Gull
Antarctic Skua*Anous tenuirostris*
Anous stolidus
Larus phaeocephalus
Stercorarius antarcticus

FAMILY DROMATIDÆ.

Crab-Plover | *Dromas ardeola*

FAMILY PROCELLARIIDÆ.

Sooty Petrel | *Procellaria fuliginosa*
Giant Petrel | *Ossifraga gigantea*
Blue Petrel | *Prion vittata*
Black-bellied Petrel | *Regetta melanogastra*
Oceanic Petrel | *Oceanites oceanicus*
Green billed Albatross | *Diomedea chlororhynchus*
Black-browed Albatross | *Diomedea melanophrys*
Green-billed Shearwater | *Puffinus chlororhynchus*
Dusky Shearwater | *Puffinus obscurus*

ORDER X.—GAVIÆ.

FAMILY LARIDÆ.

Caspian Tern | *Sterna caspia*
Greater Tern | *Sterna maxima*
Horsfield's Tern | *Sterna media*
Roseate Tern | *Sterna Dougalli*
Parayan Tern | *Sterna anastheta*
Hybrid Tern | *Hydrochelidon hybrida*
White Noddy | *Gygis candida*

ORDER XI.—PYGOPODES.

FAMILY PODICIPITIDÆ.

Pelzel's Grebe | *Tachybaptus fluviatilis* PELZELNI

THE SOIL AND CLIMATE OF MADAGASCAR

FROM AN AGRICULTURAL POINT OF VIEW.

IT is very generally believed that tropical countries possess extreme natural fertility, and imagination delights to picture them as covered with a luxuriant vegetation. Nothing, however, is less correct, for there are, in the midst of the tropics, vast expanses which are almost entirely arid; and it cannot be otherwise, on account of the peculiar geological and meteorological conditions which prevail throughout a large extent of these regions. For although the constant heat and the intense and clear light which the sun supplies to these countries are favourable to vegetable life, there are also two other elements which are of prime importance, and which are not in themselves always so favourable: the first of these is the soil, whose mechanical quite as much as its mineralogical characters exercise a preponderating influence on the development of plants; and secondly, the rains, which, whether directly, by their more or less frequent occurrence, or their greater or less abundance, or indirectly, by the rivers which they produce and feed, can never be left out of view.

Now considerable portions of the tropical countries with which we are acquainted have for their soil a silico-ferruginous clay, usually reddened by oxidation, and very frequently destitute of lime, and which, in consequence of its special mode of formation, presents throughout the different continents remarkable uniformity and is, on account of these conditions, sterile. It is, in fact, well known that in tropical countries the greater part of the crystalline schists, whether gneiss or mica-schists, many

eruptive rocks, whether ancient, as the granites, granulites, pegmatites, etc., or the modern ones, as the basalts and traps—all rocks which predominate in the tropics, as well as numerous others of various ages—are transformed by atmospheric agencies, to depths often exceeding a hundred yards, into an earthy mass more or less red, a sort of tuff which, in India, has a special appearance and is known under the name of *laterite*. This is also found, under more or less specialized forms, and to a greater or less extent, in Indo-China and the great islands of the Asiatic Archipelago, in Southern America, in Central Africa, and in Madagascar. The alteration effected in these masses of soil is chiefly due to the rains which, within the tropics, are at certain seasons very abundant and warm, and which soak through in proportion to their abundance, carrying away all those soluble particles which are of service to vegetation, especially the lime, which is besides generally rather scarce. So that in the times of heavy rain, which are so common in these countries, the water, charged with carbonic acid, dissolves and carries away what lime there may be in the earth.

This clayey soil, peculiar to tropical countries, of whose surface it forms the greater part, is not only sterile because of the special manner of its formation, but the want of rain during half the year adds further to its unproductiveness. During the long months of drought the beds of clay become dry and crack; the plants, which are then deprived of water, and whose rootlets are crushed by the shrinking of the soil, wither away and, if they are not very hardy, die after an existence of only a few months. And thus, according to a very true remark made by a Creole in Réunion, the culture of plants is there reduced to a simple culture in pots, in which the local soil, which is so compact, can hardly be employed as vegetable mould.

In Madagascar, whose area is about 230,000 square miles, two-thirds, at least of the island, that is to say, the greater part of the north, all the centre, and all the east, are formed of this arid clay.* In the south and the west, as well as at the extreme northern point, the soil is silico-calcareous.

To take another question, the distribution of the rainfall is very different according to the various localities. In the east, the seaward side of the mountain chain, which runs not far from the sea and rises steeply from the sea-level, ascends by successive stages to a height of about 3000 feet; and against this is hurled the great aerial current coming from the east laden with all the aqueous vapour it has drawn from the Indian Ocean.† Here the rainfall is abundant during almost every month in the year,‡ and also heavy, since, in certain localities situated on the coast, it reaches a total of 120 inches.§ But the wind which, ascending the flanks of this range, there deposits throughout the year, in proportion to the elevation, its excess of watery vapour, brings no rain into the central plateau and the north-westerly region, except from the end of October until the end of March,|| the period when,

* According to an analysis made in the Laboratory of the Agronomic Institute, these clays contain in 1000 parts of raw earth from 60 to 180 parts of siliceous grit, from 1 to 6 of phosphoric acid, 0.1 to 1.82 of azote, from 1 to 3.5 of potash, some traces of magnesia, and nothing whatever of lime.

† This great aerial current, which is always blowing, varying from the south-east to the north-east, divides into three branches on account of the barrier presented to it by the island of Madagascar: one passes along the north-east coast, the other follows the south-east coast, both taking the same direction as the divisions of the equatorial ocean current, and the third beats against the coast chain of mountains.

‡ It is in the months of September, October, and November that the rains are least frequent.

§ There fell at Tamatave, during the month of January, 1892, the extraordinary quantity of 33 inches, of which 15.7 inches fell in four days!

|| The total annual rainfall is about 47 inches. In January 1892, which is the most rainy month in the centre of the island, it is stated that the fall at Antananarivo is 13.5 inches, and 15 inches at Fianarantsoa (Betsileo country).

throughout the southern hemisphere, there is the hottest temperature of the whole year and the most humid condition of the atmosphere.* The rainfall during the other six months hardly amounts to anything, while the winds, blowing from the south-east, come from a colder region. As for the western plains, and especially those of the south, they are subject to drought, the number of rainy days being always very small, and the annual rainfall varying from between 7.5 inches to 15 inches at the most, instead of 47 inches, as on the central plateau; in fact, the prevailing winds, which blow almost constantly on the south-west coast, come from the counter current which skirts the southern point of the island, and blow therefore from the south-west and consequently from colder regions; they have therefore no excess of aqueous vapour to condense.†

From the foregoing facts it follows that in Madagascar, although there certainly are, here and there, *islets* or *strips* of good soil, due principally to the decomposition of volcanic rocks, and while the beds of ancient lakes and the numerous marshy valleys are favourable for the culture of rice, the land, taken as a whole, is dry in every part of the island, even where the hygrometric conditions are more or less favourable; while in the west, and especially in the south, where the silico-calcareous soil would improve by cultivation, the scarcity of rain presents great and serious difficulties in the way of planting.‡ On the road which leads from Andôvoranto to Antanânarivo there are some fine coffee plantations, but these shrubs have been planted in situations very near to or exactly upon the sites of old cattle-folds, where the oxen, shut up all night for many successive years, have modified by abundant and constant manuring the original character of the land; and so one cannot draw any fair conclusion as to the natural and permanent fertility of the soil of such places. It is the same also in regard to the plantations made for many years past around a great number of the towns and villages of the central province. These towns, inhabited by a numerous population, and where the soil has been the receptacle for centuries of both human and animal excreta, have had the clay soil greatly modified, lightened, and fertilized by the long and continual accumulation of refuse of all kinds, and so every thing planted there naturally thrives very well. The heavy rains of the hot season have even gradually enlarged the fertile belt of soil, by filtering through the neighbouring ground after being charged with the soluble parts of the manure. But it would be neither prudent nor correct to draw from such plantations, made under such abnormal circumstances, the conclusion that Imérina, the Bêtsiléo country, and the mountainous parts of Ibôina, which have, besides, always remained completely bare of wood—can offer facilities for any remunerative agricultural operations. In fact, there is hardly any *naturally* fertile land in the central mountainous region of the island, except in the valleys, or in the beds of ancient lakes which have been dried up, this process resulting either from natural causes, or having been

* In that part of the Indian Ocean which borders on Africa, the rains, which are very scanty from April to October during the cooler season, as far as the 20th parallel on the coast, are much more frequent from November to March, that is to say, during the hot season.

† When passing through the Mozambique Channel, between the Capes of St. Vincent and St. Andrew, the winds from March to November, which also blow from the south, are dry, but from November to March they are variable and come very often from the north-west, and consequently from warmer quarters, and so at this part of the year there is rain on the west coast.

‡ After comparing the very different opinions expressed upon the value of the land in Madagascar by all those who have visited this island since its discovery, and remembering the great number and weight of authority of those among them who have pronounced that the soil is arid and unfruitful, I cannot understand why such easy credence has been given to the accounts given by others, less numerous and less impartial, who have extolled its fertility in a very exaggerated fashion.

effected artificially;* in these places the Hova and the Betsileo cultivate rice with great success.†

Notwithstanding the naturally arid soil of the seaward slopes of the eastern line of mountains, one might have hoped, from the abundant rains which water them almost every day, that some kinds of plantation could be successfully carried on. But, unfortunately, to a zone of hills which separates the marshy valleys where the water, finding hardly any outlet, accumulates and lies stagnant, there succeed steep mountains which form one stage after another, only leaving between them very narrow valleys; and here, terraces, fit from their formation for agricultural operations, are rare † I cannot give a better idea of the sterility of this region than by relating what I saw in the month of July, 1870, on the route from Tamatave to Antananarivo. Three years previously Queen Rasohèrina had taken it into her head to go down to the coast; and as the Sovereigns of Madagascar never travel without taking in their train a whole people, more than 50,000 Malagasy of all ranks, and of both sexes—nobles, officers, soldiers, and slaves—accompanied her. The narrow foot-path which connects Antananarivo with the east coast, and where hardly two persons can walk abreast, was not sufficient for such a numerous escort, so that while the Court and the chief people followed the usual route, the soldiers and the slaves, when once clear of the forest, where they had been obliged *volens volens* to march in Indian file, made openings through the bamboos and shrubs which cover the region between the forest and the sea; the feet of so many travellers laying completely bare the red soil on which grew this vegetation with intertwining roots. Now, at the time of my journey, this route, made three years previously for this single occasion, and which since that time had been traversed by no one, still stretched away, like an immense red ribbon, in the midst of the cardamoms and other green plants, as bare and as destitute of *all* vegetation as it was on the week following the journey of the Queen.** I never more clearly recognized the aridity of this red clay soil, unfortunately so abundant in Madagascar, as by this fact, which struck me so forcibly; and this proves that, notwithstanding the beauty which, with truth, so many travellers have enthusiastically described, looking at it from a picturesque point of view, the country has not the fertility which it is customary to ascribe to it. The beautiful vegetation which covers the slopes and the valleys, the large herbageous shrubs, such as the cardamoms and the bamboos, which form almost impenetrable thickets, the traveller's-trees and the rofia-palms which adorn the marshy bottoms, the trees which support and display the flowers of the orchids, and which are overrun with lianas and various other epiphytes—all give to the seaward slopes of the coast chain of mountains a most luxuriant and delightful appearance. And these prospects are all the more pleasing because the mountains, which occur uninterruptedly, are watered by innumerable torrents interrupted by cascades. But if we dig, however slightly, into the soil which this vegetation hides, we are soon convinced that there is nothing to boast about in this outward appearance, thoroughly delightful although it may be; and if we penetrate into the woods of the virgin forests which adorn the heights of the hills, and examine the loftiest trees, we soon perceive that trees with large trunks are rare, in comparison with slender ones which are covered with mosses and lichens, a sure sign of slow and laborious growth. There is then no reason for surprise if those glowing expectations which were cherished at the outset during the first attempts at plantations on the eastern

* Such as, for example, the extensive and beautiful plain of Bétimitàtatra, to the west of Antananarivo.

† The Hova and the Betsileo have both succeeded, by skilful irrigation, in transforming into fertile rice-grounds the slopes of numberless hills.

‡ The south-east region is more favourable in these respects than the eastern one.

** At the present time there are no longer any traces of this route.

coast have proved deceptive. I remember having seen in the district of Foulepoint, reputedly one of the best in the island, fields of young coffee-trees, from four to five years old, whose appearance was most beautiful, and whose future productiveness seemed certain, and yet, two or three years afterwards, when the planters seemed justly entitled to hope to reap the reward of their toil, the plants began to wither and soon died away altogether. Even the sugar-cane, which appears very fine, does not yield a juice nearly so rich in saccharine matter as those of Réunion and Mauritius; and it is necessary, even in still virgin soil and well selected positions on the banks of streams, to add manure, if one wishes for any tolerable return.

If from the east we pass to the west, we shall find, as already mentioned, a soil not composed of pure clay, but of a silico-calcareous nature, still, however, more or less argillaceous in certain localities. This soil, which seems to be of tolerably fertile character, is unfortunately too dry, rain being rare in this region of the island; so it is on the borders of the rivers only that cultivation seems to have the best chance of success. In the vast extent of country comprised in that portion of the Sâkalâva territory which is found, in one direction, between the 18th and 22th parallels, and in the other, between the sea and the mountain chains of Bêmahâra and Tsîsandâva, a very coarse grass (*Heteropogon contortus*) is plentiful, which has a great power of withstanding drought, and forms excellent pasturage for cattle; but there, however, oxen are not and cannot be reared in as great numbers as has been reported.

In the south-west, between Fort-Dauphin and the Mangôky river, rain is rare, and so scanty that the Mâhafaly and Tandroy tribes are often several years without reaping either maize or sorghum, which grains form the bulk of their food, and which they plant every year at the season in which they hope, often in vain, to see rain fall. The prickly-pear, which covers an immense extent of country in the south of Madagascar, the tamarind, which thrives in sandy and dry soils, and some wild plants which produce water-bearing tubers, are the only resources on which the unfortunate inhabitants of these desolate regions depend, for drinkable water is extremely rare. It is only in parts of the beds of the very few rivers of the south-west, which are dry during seven or eight months of the year, that the natives can be sure of any harvest. There they plant the beans known in our colonies under the name of *Pois du cap*, as well as potatoes and other vegetables.

On the whole, as much the result of geological as of meteorological conditions, the greater portion of the land in Madagascar is far from being as favourable to good and profitable cultivation as has been often said and as generally believed. I ought, at the same time, to lay stress on this fact, viz., that although the greater part of the country is more or less arid, and leaving out of consideration the fine rice-plains which exist in the centre of the island and are, besides, hardly sufficient for the sustenance of the inhabitants, few localities are known where the soil is naturally and permanently fertile, there are still some provinces almost unexplored; and in these we may still cherish the hope of discovering, here and there, especially in the volcanic regions, localities of greater or less extent, suitable for at least some kind of plantation. Some part even of the argillaceous lands, thanks to constant and persevering labour, and the artificial modification thus made in their original state, might be utilized. But, to obtain such results, there must be two conditions, plenty of labour, and unstinted manuring and other dressing. Now Madagascar is very thinly peopled, and its inhabitants are, for the most part, at least on the coasts, lazy and careless; even at the present time, although there are very few agricultural or industrial companies, labourers are not to be had, so that this is a serious obstacle to the development of enterprise on a large scale in the island; one must pay dearly for labour, and yet have no guarantee of getting it uninterruptedly.

Besides this, dressing for the soil, especially lime, which is so indispensable for vegetation, and which is completely absent in the greater part of the island, cannot be conveyed to these places except at a ruinously high price and with great difficulty.

Finally, as I have already remarked in the first part of this article, it is not in Madagascar only that a similar state of things exists. In the numerous tropical countries which I have travelled through during some twelve years, in South America, in Central Africa, and in India, I have seen extensive regions in which exactly the same geological and meteorological conditions prevail, and which are quite as arid. M. Le Myre de Vilers who was successively Governor of Indo-China and Resident-general in Madagascar, and with whom I have frequently had the opportunity of discussing such subjects, has come, from his own observations, to very similar conclusions. He thinks that he can even formulate, as a general law, that within the tropics remunerative cultivation is often only practicable in the silt of the deltas formed at the mouth of rivers, and in the valleys where, on the one hand, vegetable mould accumulates in proportion to its production, and where, on the other hand, the rivers maintain during the whole year a certain humidity favourable to vegetation.

May I be allowed, in conclusion, to advise colonists who wish to undertake agricultural enterprise in Madagascar, to guard carefully against delusions as to the permanent fertility of the localities where they propose to settle, or from drawing hasty conclusions from the appearance of land covered with wood or with apparently vigorous shrubs; and to undertake nothing without having carefully considered the nature of the subsoil and the meteorological conditions of the place; lest they should have to regret, as many others have done, having cleared at great cost and put into good condition land of very poor quality, whose fertility will be very short-lived and sometimes even almost null, while the returns are and will be for a long time very conjectural.

Translated from the French of*

ALFRED GRANDIDIER

By JAMES SIBREE (ED.).



* *Comptes rendus*, t. cxviii., 30 Avril, 1894.

THE HOT SPRINGS OF MADAGASCAR.

MADAGASCAR, in many of its aspects, seems to be a little world in itself. It has its rivers, lakes, mountains, and forests in common with other countries, but it has many features which are of infrequent occurrence in other parts of the world, and much that is quite peculiar to itself. Its rocky formations represent the various geological periods from the earliest, or Archæan, down to the present, or Quaternary, still in course of development. Its variety of rocks, its dried or silted up lake beds, of early as well as recent formation, and its numerous groups of hot water springs, make the island a study of the deepest interest to the geologist and others who delight to observe the wonders of the earth's surface. From the early geological times down to the present, Madagascar has always had many points of interest peculiar to itself. This is shown especially in its fauna and flora of the past ages and also of the present. The peculiarities of the past are shown by the remarkable fossil forms which have lately been found. The most important of these are *Steneosaurus Baroni*, an old world reptile, and also some remains of a gigantic *Deinosaur*, which I discovered in the Jurassic beds of North Madagascar. Of later date are the fossilized bones of the struthious *Epyornis*, an enormous bird; of *Testudo Grandidieri*, a huge Tortoise; of *Megaladapis madagascariensis*, a gigantic Lemuroid; and also the remains of some other animals, all which I found in South-west Madagascar. These are all peculiar to, and give a marked interest to, the island, and are now to be seen in the geological galleries of the British Museum.

Of the present fauna of the country, most of the genera and nearly all the species of mammalia are peculiar, notably the *Fosa* (*Cryptoprocta ferox*); the Lemuroids, and the Centetidæ. Of the birds, there are some 240 species known, and 129 of these are found only in Madagascar. The flora is as peculiar to the island as the fauna, for of more than 4000 species which are now known, some 3000 are indigenous. The above few remarks are sufficient to show that Madagascar is in itself a remarkable place, and most of its products are as strange as the country is novel.

The numerous hot water springs, which are to be seen in various places throughout the length of the country, may be numbered amongst the notable features of the island. These are chiefly in groups, and their influence extends over wide areas. Most of them are exceedingly hot, others reach the surface in a less heated condition. In the course of my travels in Madagascar I came across several groups of these springs. The first I saw was situated in the Roaména valley, along the banks and in the bed of the river of the same name. To reach this place from Nôsibè, the chief port in Northern Madagascar, we made a short voyage of about six hours by boat across Pâsindava Bay and up the Sâmbirano river for about three miles. Landing here, the water being too shallow for a boat, we proceeded on foot, and following the course of the river, we traversed a wide tract of flat, well-cultivated country until we arrived at the village of Mbwanji (Amboânjo?). We now entered the mountainous part of the country, and, passing up the right bank of the river for some three miles along a shelf of rock at the foot of the hills, we reached the village of Bènavôny. This is situated in a large hollow basin, completely surrounded by mountains, except at the two points where the Sâmbirano enters and leaves it. The bottom of this huge basin-like hollow is flat and boggy. It seems to have been originally an enormous crater; then, when quiescent, it became a lake; afterwards, the Sâmbirano, gradually grinding, cutting, and washing away its rocky bed to the level of the lake, drained its waters away and left it dry.

Leaving Bènavôny, we proceeded up the right bank of the Sâmbirano to a

remarkable place, where the water has washed a passage for itself through a mass of rocks which lie at right angles to the river. Here the rocky sides are perfectly upright for a height of 200 ft. or more, and the river is contracted from its usual width of about 100 yards to not more than 50 ft. In passing this spot some time afterwards, whilst descending the river in a flat bottomed canoe, it seemed like going gently along a narrow dyke having enormous lofty walls on either side. During the wet season the rush of water through this passage must be something awful. Passing over the rocks at this place, we went on to the village of Mbalumbuzu, rested, and then, resuming our journey, we shortly afterwards reached the mouths of the Roamena, or, as some call it, the Sambirano mainty (Black Sambirano). Here a considerable delta has been formed of alluvial soil washed down from the hilly regions. It is a most fertile spot, and every portion of it is closely cultivated with corn, beans, and vegetables by the people of Mbalumbuzu.

We proceeded up the right bank of the Roamena in an easterly direction for a distance of some four miles, a towering range of hills on either side. Now we came to the small stream and village of Antsèva, near to which there is a sharp bend in the river to the south. A further walk of about three miles brought us to the much talked of hot water springs. Here the river bed is somewhat narrow and inclosed by lofty hills, the sides of which are covered with a dense forest. Its bed is formed of rounded pebbles and boulders of a hard black rock, and in the middle of the stream there is a heap of boulders all massed together. This is decorated with a number of tall bamboos, flying red and white flags, which mark the spot as a sacred place of the Sàkalàva. Two or more springs of boiling water rise up from among these rocks and rush away into the passing river. These springs are heavily charged with a kind of salt, which is found deposited all round about. The natives cannot account for the water being hot, so conclude that the place must be the seat of some supernatural power, and therefore deem it the proper place whereat to make their prayers and offer their sacrifices. But although they cannot understand the reason for the water being hot, yet they quite appreciate the springs as a healing source. The natives of the district, and also many from a distance, when afflicted with rheumatism and kindred diseases, resort to the springs, when they both bathe in and drink the water. The medicine-men also recommend it strongly, thoroughly believing in its healing powers.

Besides these springs, rising from under the heap of rocks in the bed of the river, there are two others on the right bank, a little higher up. They are of a similar nature to those just described, the water being boiling hot, and saturated with salt, which they deposit all round about. This spot on the Roamena seems to be the eastern limit of the group. The western limit appears to be on the left bank of the Sambirano river, some few miles above the delta of the Roamena. The country intervening between the Roamena and the Sambirano is occupied by a lofty mass of mountains, and apparently there is no outlet by which the water can escape. The springs on the left bank of the Sambirano rise out of a boggy piece of country, over which the water flows, leaving a deposit of salt, and escapes into the Sambirano. The natives do not seem to appreciate this place for its healing properties so much as they do the hot springs of the Roamena. Whether it is on account of the country being muddy and the water somewhat dirty, or whether the native medicine-men depreciate these and extol those of the Roamena for some purpose of their own, it is difficult to say. Of this, however, it is certain, that the quality of the water is the same in both places, and whatever medicinal properties there are in the one are also to be found in the other.

Some time afterwards I was travelling in the Antanòsy districts of South-central Madagascar, where there is a large tract of country abounding in

hot water springs. These vary considerably in heat ; some are boiling hot, others are of moderate warmth, so that people can freely bathe in them. They differ from those in the north in that they are perfectly tasteless, leave but a small deposit of salt or other matter wherever they flow, and they give off a peculiar odour whilst hot, which quite disappears when the water has cooled down. The country occupied by this group of hot springs is undulating, and limestone crops up in several places. The eastern limits are at the town of Sàlo-avàratsa, and about the right bank of the Tahèza tributary of the Oniláhy river. Just outside this town two springs of moderately hot water rise out of a bed of limestone formation some 200 ft. or more above the river bed a short distance away. The water of the upper spring is constantly used for all purposes by the natives, who prefer it to the fresh water of the river. For a bath it is delightful and peculiarly invigorating, seeming to impart a freshness and ease to the whole body. I frequently bathed in these springs whilst in the district, and not only enjoyed it, but felt considerably benefited by so doing.

Crossing to the right bank of the Taheza, and on to the villages of Ivòhimèna, Bezà, and Ambondrombè, we came to quite a number of these springs. Those about Ivohimena and Beza are used by the natives for drinking and other purposes in preference to the river water. These vary in heat as they appear at the earth's surface ; some are of quite moderate warmth. One, at Beza, rising in the bed of a pool of water, makes the whole pond of a delicious warmth ; but the natives, when bathing, take care not to approach too near the spot where the spring rises up, for it is boiling hot. Another spring, at a little lower level, near Ambondrombe, is extremely hot. A story is told by the natives that a drunken man, boasting to his companions, declared that the water of this spring was not too hot for him, so in he jumped, and as quickly he wanted to jump out again. His companions drew him out, but he was so severely scalded that he died directly. As these waters are constantly used by the natives, it is difficult to ascertain by simple observations amongst them whether the springs have any medicinal properties or not.

Further on we pass through the Ivòhibè district and on to Andranomay. This is a small river on the left bank of the Onilahy, at the western extremity of the Tsitakabalàla hills. Climbing up the river banks, then scrambling over a rough rocky ground covered by bush forest, we came to the foot of the hills. Here a large boiling spring comes bubbling up, filling the place all around with a peculiar smelling vapour. The water forms a little stream and escapes by its own watercourse, the Andranomay, into the Onilahy. Judging from the size of the watercourse, it leads one to think that the spring was formerly much larger than it is at present. The spring, rivulet, and district all take the same name, Andranomay ("At the hot water"). Besides these hot water springs which I visited in the two extreme points of Madagascar, there are several others scattered about in the central parts of the island. These are situated chiefly in the districts lying to the west and north west of Antananarivo. Another important district is that of Antsirabé, in lat. 20° S., and long. 47° E. Reference is made to these in various articles of the ANTANANARIVO ANNUAL (IX. p. 73, XII. p. 507, XV. p. 376).

The principal springs in Central Madagascar are situated on the banks or in the vicinity of the Ikòpa river. Several occur near the south end of the Ankàdivàto hill, others further down the river, at Andranomafàna ("At the hot water") – an appropriate name – some forty or more miles to the west of Antananarivo ; others spring up at the south-east corner of the Ifànja marsh, and others at some few miles' distance from the south-west of Itasy lake. The whole of this country is very mountainous, abounding with extinct volcanoes and extensive lava beds. The waters of the various springs seem to differ in their chemical properties. Those on the banks of the Sasàrotra appear to

be impregnated with iron, others in North-west Vònizòngo contain sulphate of magnesia, soda, and common salt. They used to be in such great favour with the natives some years ago, as a remedy for skin diseases, that thousands of people resorted to them, thinking the waters would heal all complaints. Ultimately the concourse became so great, that the Government had to interfere and disperse them to their homes.

Some sixty miles further south of the above group of springs there is another in the district of Antsirabe. The country is elevated nearly 6000 ft. above the sea, and is full of extinct volcanoes. Besides the hot springs in the district, the place is also remarkable for the abundance and variety of fossils which have been found there. There are both hot and cold water springs in the same locality. These rise out of a bed of limestone formation, and pass through a stratum of black soil to the surface. Over them small bath-houses are built, which are extensively patronised. These waters have been analysed by Professor Waage, of Norway, who states that they are uncommonly rich in alkalies, in fact, are among the richest in the world, and that they are closely allied to those of Vichy. Dr. Parker says all these springs contain the same ingredients, viz., lime, magnesia, soda, and potash, in combination with chlorine, iodine, sulphuric acid, and carbonic acid, with the addition of free carbonic acid gas.

The fossils are found under the stratum of lime, some 6 ft. or 8 ft., below the surface, and they comprise chiefly the remains of Hippopotamus, *Æpyornis*, Tortoise, Crocodile, and a number of smaller birds and animals. The most important find in the district up to the present is the head of the *Æpyornis*, which has not, as yet, been found in any other part of Madagascar.*

J. T. LAST.

From "*The Field*," May 26, 1894.

OHABOLANA,

OR

WIT AND WISDOM OF THE HOVA OF MADAGASCAR.

INTRODUCTION.

THE Hova of Madagascar are not Africans but Asiatics, being said to be of the purest Malayan stock. Many hundred (?) years ago their ancestors landed on the island, and after making their way up into the high lands of the interior, they gradually dispossessed the Vazimba—a tribe of the original inhabitants—and settled themselves down in their country. Here, on the great central plateau, called Imérina, they have increased and multiplied until they now number probably not far short of a million of souls.

They are a warlike race; and had they never come into contact with western civilization, they would doubtless still be a powerful people. It has been chiefly by the aid of arms and military instruction obtained from the English, however, that they have succeeded in establishing

* It has been hitherto supposed that M. Hildebrandt was the first who discovered bones of the *Æpyornis*, etc., at Antsirabe. The truth is, however, that the Rev. T. G. Rosaas, the Norwegian missionary settled there, was the first to discover them, and that the fossils which M. Hildebrandt sent to Europe were given him by Mr. Rosaas; and so also were those sent by M. Müller, on which MM. Grandidier and Milne Edwards have founded a new genus and a new species named after him; see *ante*, pp. 142, 143.—EDS.

their supremacy over most of the other tribes, to whom, it must be admitted they are intellectually superior. Their Sovereign is styled *Queen of Madagascar*, and is generally acknowledged as such by other powers.

Sixty years since, the Hova were an uncivilized heathen people, the alphabet of whose language was not so much as formed. But within that comparatively short period a marvellous change has taken place, owing to the blessing of God on the labours of Christian missionaries: idolatry has been destroyed, the only true religion is exerting its life-giving, purifying influences on all ranks of society, civilization is making great headway, and a native literature is being rapidly created. In connection with the London Missionary Society and the Friends' Foreign Missionary Association alone there are upwards of a quarter of a million adherents, with some fifty thousand children in the schools, for whose benefit two printing presses are constantly at work, producing thousands of books and tracts every year.

Like many other peoples the Hova are very fond of proverbs. These pithy and popular expressions of worldly wisdom—to add one more to the many attempts at definition—are constantly used “to point a moral and adorn a tale.” They come tripping from the tongue at home and abroad, around the family hearth, and amongst the busy crowds of the market-place. They are brought forward on every occasion. Indeed no palaver at a tribal gathering, no courtier's address in the palace, no great officer's harangue to the assembled thousands when the Queen's word is proclaimed, and no sermon by any one of the many preachers of God's Word, would be considered complete without them.

Nothing succeeds so well with native bearers as an aptly quoted proverb. They will forgive much in the way of want of logic, paucity of thought, a bad choice of words, and indistinctness of expression, if what they do get be only served up with a few terse and racy sayings that are already familiar to their ears. Very often does it happen that the introduction of a spark or two of proverbial wit into a poor address arouses the flagging attention of a sleepy audience and wins from them a round of approving and enthusiastic clicks.

A people is known by its proverbs; for what is nearest and dearest to the heart of a nation, the aspect with which they contemplate life, how honour and dishonour are distributed amongst them, and what is of good and evil report in their eyes, will surely be apparent in their proverbs. There is a speciality about them, a certain form and colour, and a distinctive ring that to observant eyes and ears betray something of their nationality; and just as surely as the common and everyday sayings of England reveal their western origin, do those of Madagascar discover themselves as born of an eastern race.

In this collection of household words the Hova describe themselves, unconsciously revealing many of their inmost thoughts and feelings. In perusing them the reader will find something that is instructive as well as amusing, will recognise a similarity to the adages of his own mother tongue, and be impressed with the fact that such expressions of practical wisdom are not the “genius, wit, and wisdom” of any one nation. They are indeed common to all and come from the one old book of human nature, which is ever the same all the world over. The cover may be white, brown, or black, and the leaves more or less dis-

coloured, but there is no essential difference in the characters written by the finger of God upon them.

The number of Malagasy proverbs is legion, though they are not nearly so numerous as those of the civilized nations of Europe, where in Spain alone, it is said, there are upwards of twenty-five thousand. Nearly all that are here contained belong to the Hova, and have been collected within the last fifteen or twenty years. Perhaps about half of them were obtained by the Rev. W. E. Cousins and Mr. J. Parrett and published at Antananarivo in the vernacular, without any attempt at arrangement, in the year 1871, "for the use of Europeans interested in the study of the language," whilst the rest have been gathered by the writer and other friends.*

These sayings do not by any means include all the "wit and wisdom" of the Hova, though they give a tolerably correct idea of their proverbial philosophy. The language is rich in folk-lore, songs, idioms, riddles, and laconisms, etc., a good collection of which was published at the Capital several years ago by the Rev. L. Dahle of the Norwegian Missionary Society. Some of the tales have been already translated. None of these find any place here, as the writer has contented himself with the arrangement and translation of proverbial expressions only. He is conscious of many imperfections in the work, and in introducing it to the reader is simply desirous of expressing the hope that, being the result of much labour and care, it may prove of interest to many who do not live in Madagascar and of some use to those who do.

The occasional notes and comments, while explaining and illustrating the proverbs to readers at home, will also be helpful to any who may be studying the language in the island itself. It should be stated, however, that a *literal* translation should not always be looked for, as a *too faithful* rendering would often result in very unreadable English. The main thing aimed at is *facility of reference*. To secure this end the proverbs have been arranged according to their meaning, and a good index has been supplied. Accuracy has, as far as possible, been secured; and it will be seen that, where doubt exists as to the true signification of a proverb, it has been placed in one of the two last chapters, and where there is a probability of more than one legitimate interpretation, further references are given at the bottom of the page.

J. A. HOULDER.

I.—Mankind.†

1.—*Ny olombelona mora soa sy mora ratsy.*

Men are easily good and easily bad.

Referring especially to their moral conduct, but also having reference to their physical condition and worldly circumstances.

2.—*Ny olombelona tsy fo vato, fa fo emboka.*

Men are not stone hearts, but gum hearts.

They are soon melted: referring chiefly perhaps to the uncertainty of life and the rapid approach of death. *Fovato* is the name of a peculiar kind of beetle having a very hard skin with horny protuberances upon it. Here, however, *fo vato* means *stone hearts*.

* [A second edition, arranged alphabetically, and containing 3790 proverbs, was issued in 1885.—EDS.]

† See also Chaps. iv, v., xi., xxiv.

3.—*Ny olombelona toy ny amalona an-drano, ka be siasia.*

Men are like the eels in the water, and often go astray.

They are erring mortals. They twist and turn about instead of going in a straight line.

4.—*Ny olombelona tsy main-tsy lena.*

Men are neither dry nor wet.

They are neither too good nor too bad.

5.—*Ny olombelona voatr' ampangoro, ka mifandimby ambony sy ambany.*

Men are (like) the boiling rice, and move up and down.

Alluding to their worldly circumstances. *Ampangoro* is the rice boiled until it is quite dry. When it is being *voatra* or *voarina*, i.e. prepared or cooked, the water, in the course of being evaporated in the form of steam, bubbles up through the rice and makes it dance about in the pot. So it is with man: he is ever changing, first up, then down.

6.—*Ny olombelona tsy ary mitovy.*

Men are not made alike.

7.—*Ny olombelona tsy miditra am-pitarihan-tokana.*

Men don't all go one road.

8.—*Ny olombelona toy ny omby : indray mandry, fa tsy indray mifoha.*

Men are like the oxen: they lie down together, but don't get up together.

Each having his separate interests to attend to.

9.—*Ny olombelona fandrindrano, ka tsy misy avo sy iva.*

Men are waters at rest, there are none high and none low.

They are neither more nor less than human.

10.—*Ny olombelona toy ny molo-bilany, ka iray mihodidina hiany.*

Men are like the rim of a pot, and one all round.

11.—*Ny olombelona hoatra ny ladim-boatavo, ka raha fotorana, iray hiany.*

Men are like the creeping stem of the pumpkin, and if traced, are found to be one.

Voatavo is the word used for all kinds of gourds.

12.—*Ny olombelona toy ny akondro : raha manondro ny lanitra, iray hiany ; fa raha miondrika, samy manana ny lafiny.*

Men are like banana trees: when they point to the sky (i.e. the leaves), they are one; but when they bend down, each has its own place.

13.—*Tsihy be lambana ny ambanilanitra.*

Men are a large mat.

They are joined together into one great whole, as are the separate rushes of a large mat. The word translated *men* literally means *the under heaven*.

See also 267.

II.—Religious Beliefs and Superstitions.

God.*

14.—*Manao an' Andriamanitra tsy hisy, ka mitsambiki-mikimpy.*

To make out there is no God, and take a leap in the dark. Lit. To jump with the eyes shut.

15.—*Avo fijery ny Andriamanitra, ka mahita ny takona.*

God looks from on high and sees what is hidden.

16.—*Aza ny lohasaha mangingina no heverina, fa Andriamanitra no ambonin' ny loha.*

Don't think of the silent valley, for it is God who is overhead.

And the secret sin you intend committing there won't be secret to Him.

17.—*Tsy misy tsy fantatr' Andriamanitra, saingy minia miondrika Izy.*

There is nothing unknown to God, but He determines to bend down (as if to see).

18.—*Andriamanitra tsy tia ratsy.*

God hates evil.

19.—*Ny adala no tsy ambakaina, Andriamanitra no atahorana.*

The simple are not cheated, because God is feared.

See Chap. xxvii.

20.—*Aleo meloka amin' olombelona toy izay meloka amin' Andriamanitra.*

Better be guilty with men than guilty with God.

See Chap. xvii. Compare No 1414.

21.—*Andriamanitra tsy an' ny irery.*

God does not belong to one (alone).

22.—*Ny tany vadiben' Janahary : mihary ny velona, manotrana ny maty.*

The earth is God's chief wife : she maintains the living and guards the dead.

The word translated *maintain* literally means *to gath-r up, to acquire*.

When polygamy was the universal custom, the first or chief wife had the care of the property and added to it as often as she could.

23.—*Ny iray tahitahin' olombelona, fa ny iray tahitahin' Andriamanitra.*

One is blessed by man, and the other is blessed by God.

* See 75, 78, 1962.

24.—*Mandeha irery, sahalain' Andriamanitra ; mandeha roa, sahalain' olombelona.*

Go alone, you are judged by God ; go with another, you are judged by men.

These two proverbs (23 and 24) have a moral reference. If you are alone in doing right, God gives you justice when men do not. If you have others on your side, their help suffices.

25.—*Aza manao an' Andriamanitra azo am-po mandrakariva.*

Don't say you have God always on your side (and be over confident).

26.—*Andriamanitra tsy andrin' ny olona andriko hiany.*

God who is not waited for by others is waited for by me.

27.—*Toy ny akoho kely misotro rano, ka ny Andriamanitra no andrandrainy.*

Like the chicken drinking water, it lifts its head to God alone.

There is only Him to depend on.

See 573, 579.

28.—*Haitraitr' olombelona zaka-Nanahary, fa Andriamanitra hiany no mandidy.*

Man's will is subject to God, for He alone reigns.

Haitraitra really means *self-will* or *caprice*. The words *Andriamanitra* and *Nanahary* are both used for *God*.

29.—*Na dia manarona akoho aza, raha mby amin' ny omen' Andriamanitra, dia manana.*

Even as to the covering over of the fowls, if God wills it, you will prosper.

Lit. *if you come upon the time of God's giving, you will prosper.*

The hen sits on her eggs in one corner of the house, and when the chickens are hatched, she and her brood are covered over with a basket that they may be safe from all injury.

30.—*Aza mandidy alohan' Andriamanitra toy ny mpanotrika akoho.*

Don't reckon your chickens before they are hatched.

Lit. *Don't decide before God, like the hatchers of fowls.*

31.—*Tsy mandidy alohan' Andriamanitra aho, fa izay zara-vintana lolohavina.*

I don't decide before God, but take whatever comes.

Lit. *but I carry on my head whatever is my lot.*

32.—*Aza manao vava azon' Andriamanitra.*

Don't make out that what you say is heard by God.

Lit. *gotten by God.*

This may mean : *Don't promise what you can't perform, or, Don't call God to witness a false promise.*

33.—*Aza mandika ny soan'-fanahary.*

Don't change the good things of God.

Be content with such things as you have, and don't seek to change them by having recourse to divination.

34.—*Tarehy ratsy nataon-Janahary, ka tsy vanon-kisaron-doha.*

When God has made a face plain, covering the head won't make it handsome.

The natives sometimes seek to hide facial disfigurements by partially covering their heads with one corner of their flowing robe.

See Chap. xxii. and nos. 1283—1308.

Divination *

35.—*Sikidin-dRahivina, raha tsy lahy, vavy.*

Mr. Headshaker's prediction, if it's not a boy, it's a girl.

Giving a broad hint as to the nature of the whole business. The wiseacre shakes his head in a mysterious way and gravely utters his occult prophecy, but the expectant mother who consults him shrewdly suspects that she knows as much about it as he does.

36.—*Aza mila voa tsy ary, toy ny mpisikidy mampandihy ny marary.*

Don't desire an impossibility, like the diviner who demands a dance of the sick (as the first condition of his prophesying his recovery).

Compare 300, 1734.

37.—*Toy ny sikidy saka : ny fo iray hiany, fa ny loha no samy hafa.*

Like the divination by means of a cat : the heart is one thing, and the head another.

38.—*Sikidy soa tsy andihizana ; sikidy ratsy tsy tamiana.*

You don't dance for a good divination, and you run away from a bad one.

Lit. *you don't make yourself at home because of a bad divination.*

39.—*Manao zanaky ny mpisikidy, ka tsy mba ho faty, na zanaky ny mpanefy, ka tsy mba ho may.*

To say you won't die because you are a diviner's child, or you won't be burnt because you are a smith's.

Witchcraft.†

40.—*Fatra-piahiahy mamosavy ; fatra-pifehy trano tangalarina.*

Too suspicious proves you a witch ; too careful to fasten up the house proves you a thief.

Extreme timidity and over carefulness sometimes arise from a knowledge of one's own evil practices.

The word *mamosavy* is used to signify a *male* as well as a *female* practitioner of the black art, but for the convenience of translation we shall consider it as applying to the feminine gender only.

* See also 2056, 2073. † See also 348, 467, 1082, 2033.

41.—*Nahoana no ho mpamosavy hianao, nefa torahan' olona trano ?*

How is it that folks throw at your house when you are a witch ?

Reputed witches go about at night stamping on the graves of those who are obnoxious to them and throwing stones at houses and kicking at the doors and windows to frighten the inmates. Aha ! what you do to others is done to yourself.

42.—*Lamba mena nenti-nanitsaka, ka babon' ny mpisambotra.*

A red robe taken to dance (on tombs) with and taken away by the one that catches (the wearer).

Red robes are generally somewhat expensive. They are used to bury the dead in.

43.—*Mpamosavy namosavy boka, ka matin' ny olon-dratsy ny olon-tsy vanona.*

The witch bewitched a leper, so the imperfect person was killed by the wicked one.

We have another form in *Jiolaky nakafaty mpamosavy*, etc.—*The robber killed the witch*, etc. *Mahafaty*, the word translated *kill*, often simply means *to injure*. See 123.

44.—*Potraka am-baravarana toa mpamosavy.*

To fall down at the door like a witch.

45.—*Aza faly am-panaovan-dratsy hoatra mpamosavy.*

Don't rejoice in doing evil like a witch.

46.—*Tsy tia maro toa mpamosavy.*

To dislike many like a witch.

47.—*Mpamosavy mandalo fasam-bao : zava-panao ka tsy aritra.*

A witch passing a new tomb : she must do according to her wont (i.e. dance on it).

48.—*Ny mpamosavy aza mivoaka misasaka alina dia hita hiány, ka indrindra fa izay manao ratsy antoandro.*

Even the witch going out at midnight is seen, much more those who do wrong in broad daylight.

49.—*Ilony mpamosavy tsy mivòvò mba handosirana, ary tsy maniry tandroka mba hiviliana.*

This witch doesn't bark that she may be fled from, and doesn't grow horns that she may be turned away from.

You have no means of knowing her and thus escaping her power.

50.—*Manao ho akan' ny alina, ka misavily sandry maizimbolana.*

To make yourself to be familiar with night and dance away in the darkness.

To prove oneself a witch by adopting her practices.

Lit. *by swinging arms about*. The arms have often more to do in native dancing than the legs.

51.—*Mpamosavy nalevina an-dalana, ka ny valin-kitsaka no miverina.*

A witch buried by the road-side, she is used as she used others.

Lit. *it is the answer of her trampling that returns.* She danced on the graves of those she wished evil to, now others dance on hers.

52.—*Mpamosavy natakalomby mahery : lasa ny loza, fa tonga ny antambo.*

A witch exchanged for a wild ox : one evil has gone, but another has come.

"Out of the frying-pan into the fire."

53.—*Raha mpamosavy azo nanitsaka, ataovy toy ny anana, ka raha maniry, tsongoy.*

If she is a witch caught treading (on the tombs), serve her as you do herbs,—pluck (them) up when they grow.

The natives are very fond of herbs of various kinds, and gather them as soon as they are ready to be gathered.

54.—*Ramahaimanana no voatora-trano, ka Rainikotoamboana no lava hoho.*

One has his house pelted at, so the other has long nails.

People said to practise witchcraft pelt the houses of others at dead of night.

Ancestors and Spirits.

55.—*Andringitra any, koa saro-javatra ; ny zavatra moa no haninona, fa hianao no tia katsakatsaka.*

Andringitra is yonder and is made dangerous by spirits ; what do they ? is it not you that will search about (there) ?

The danger doesn't come to you, you go to it. *Andringitra* is the name of a mountain N.N.W. of the Capital, and is said to be the home of numerous spirits of the *Vazimba*, the original inhabitants of the country. It is in an unhealthy district.

56.—*Fantatro fa tohon-javatra, fa iniako jonoin-kankarary.*

I know that it is a spirit's *toho*, but I will angle for it, though it makes me ill.

Zavatra is used in an indefinite sense for the spirit of a *Vazimba* or any supernatural being, and *toho* is the name of a fish.

Compare 304.

57.—*Miteny irery toy ny miresaka amim-bazimba.*

To speak to oneself, like him who talks to a *Vazimba*.

58.—*Miangatra hianao ; taolan-doha hivolana va ?*

You are mocking ; shall a skull speak ?

Miangatra means to act unfairly or partially. It is here equivalent to *mila voa tsy ary*=want what you can't get, hence the secondary meaning, to make a pretence.

59.—*Ny Vazimba no mankarary, ka ny akoho no mihanton-doha.*

It is the Vazimba that makes ill, so the fowl has its head hung up.

The other form of the proverb partly explains its meaning: *Ny Vazimba no voahitsaka, ka ny akoho no voatapa-doha*, i.e. *The Vazimba (tomb) is trodden on, so the fowl has its head cut off*, and hung up on the sacred stone to propitiate the offended spirit.

60.—*Tany mainty tsy mba Vazimba.*

Black earth isn't a Vazimba.

61.—*Ny adala no manitsa-bazimba, ka ny lehibe no aolanolany.*

Fools tread on Vazimbass' (graves), and the great are punished by them (lit. twisted).

62.—*Harem-bery foana, toy ny menaka ahoso-bazimba.*

Lost wealth, like the grease used to anoint the Vazimba, i.e. their tombs or sacred stones.

The anointing of sacred things and places is the principal part of fetish worship.

63.—*Misakaiza amin-bazimba malahelo : ka ny akoholahy lany, ny fitahiana tsy misy.*

Making friends with a poor Vazimba : the cock is gone, and there is no blessing.

The bird has been sacrificed in vain.

64.—*Raha razana tsy hitahy, fohazy hiady vomanga.*

If an ancestor won't bless you, wake him up to dig sweet potatoes.

Often coupled with 1772.

65.—*Sendra masaka, tokony hihinana ; avy tsy asaina, nasesiky ny razana.*

If one happens on cooked food, he should eat ; come uninvited meats sent by the ancestors.

66.—*Lolo mamoha angatra.*

A ghost that wakes a spirit.

67.—*Ny kibobo no mena-maso : miresaka amin' ny Vazimba.*

The *kibobo* has red eyes, because it talks with the Vazimba.

The *kibobo* is a species of bustard-quail (*Turnix nigricollis*).

See 508.

68.—*Ny papelika no maro vava, mitana ny hafatry ny ntaolo.*

The *papelika* chatters much because it holds the will (messages or requests) of the ancients.

The *papelika* is the common quail (*Coturnix communis*).

Fetish Worship, etc.

69.—*Ny maty no tsy alevina Alakamisy sy Alahady, ny velona no tandrovana.*

The dead are not buried on Thursdays and Sundays because the living are cared for.

Burying on these days was thought to increase the number of the dead by spreading disease amongst the living.

70.—*Ny handrina no tsy maniry volo, ny henatra.*

No hair grows on the forehead because of shame.

71.—*Ny takatra no fis-doha, marary tsy misy mpanondana.*

The *takatra* has a flat head because there is none to pillow it in sickness.

The *takatra* is the tufted umbre (*Scopus umbretta*)

72.—*Rarako tsy zaka, hoy ilay takatra.*

I warned you, but you would not heed, said the *takatra*.

A play upon words and a fable. The bird's note sounds somewhat like these words, and the people partly believed they were spoken.

73.—*Tranon-tukatra, ka izay mandrava azy aloha no boka.*

The *takatra*'s nest, whoso destroys it first becomes a leper.

See 163.

74.—*Ingorifolsy mitono sahondra, ka boka' ny nataony.*

The old woman roasts the flower of an aloe and makes herself a leper.

Doing this was thought to be productive of leprosy, hence this and similar proverbs are used to signify any act that brings injurious consequences.

75.—*Boka mitoraka Alahamady, ka hitan' Andriamanitra ny tarehiny.*

The leper throws in Alahamady, so God sees his face.

Alahamady is the name of the first Malagasy month. The leper doesn't want his poor disfigured face to be seen, yet does the very thing that exposes it.

76.—*Tafintohina mandon-tavy, ka merika ny andro.*

Stumble and knock the pot, and you'll bring a drizzly day.

There are several explanations of this superstition, depending mostly on the interpretation of the word *mandona*. If it means to *knock against* anything, then the breaking of the fragile earthen vessel must be understood as the cause of the drizzly day; but if it signifies to *wet* or *soak* the vessel in the water, then that, on the contrary, would be the supposed cause of the misfortune. In this case the utensil would not be the ordinary pitcher for fetching water, but the black sooty pot used for cooking and taken to the river on an emergency.

The whole circumstance, however, might have had something to do with the working of the *sikidy*, a system of divination, which is rapidly passing away in the central provinces, and is there only practised in secret.

77.—*Sendra mandato Ramaka, ka may ny tanàna.*

Mr. Fetch happens to pass, and the town gets on fire.

Ramaka is probably a name for the lemurs which were supposed to have fire in their tails.

78.—*Raha ny tianao no hatao, hetsika Andriananahary; fa raha ho an' olona, tangena ambonin' ny varavarana.*

If what you wish is to be done, then God moves; but if for another, poison is over the door.

The *tangena* poison was largely administered as an ordeal to persons suspected of crime. The devotees of the idol waited for certain significant shakes in answer to their questions, much in the same way as the dupes of spiritualism look out for the tilting of their tables or the knocking underneath them. To the initiated favourable answers are not difficult to be obtained.

79. — *Aza matoky tangena entin-drahalahy.*

Don't trust the *tangena* brought by a brother.

A humiliating piece of advice, for a brother ought surely to be trusted to administer the ordeal in a perfectly safe manner. The judicial innocence or guilt of a person undergoing the ordeal depended almost entirely upon the skill of the administrator and the kind of verdict he desired to produce.

80. — *Natao kitsikitsika hivavahana, kanjo voromahery hipaoka ny akoho.*

You were thought to be a *kitsikitsika* to pray to, but you are a *voromahery* which swoops down on the fowls.

The *kitsikitsika* (a kestrel-hawk) was formerly worshipped, and a small piece of the wings, or legs, or body was given by the diviners to be used as a charm or presented as a sort of sacrifice when praying to the fetish. Many of the ignorant still venerate the bird and make supplication to it. The *voromahery* is a peregrine falcon.

81. — *Tsy nisy nivavaka niankandrefana, fa samy nianavara-tra hiany ; fa ny harena mila vintana, ka raha tsy anjara, tsy tonga.*

No one prayed towards the west, but all prayed towards the north, yet wealth needs luck (or destiny), and if it isn't your lot, it doesn't come.

The north-east corner of the house is called the *Zoro firazazana*—the corner where the *rary* (singing and invocations) were made. This is where the fetish was placed, and all prayed towards it. But although the proper forms are followed, the acquisition of wealth depends more on destiny than on prayer.

82. — *Manao ondry tsy harena, ka misorona ondry boka.*

To think that a sheep is not valuable, and offer in sacrifice a leprous one.

83. — *Misorona ondry tsy volony, ka mankalaza ny aretina.*

To offer in sacrifice a bad sheep and intensify the disease.

84. — *Izaho tsy mahalala sorona, fa sorona afo no fantatro.*

I don't know sacrifice, I only know feeding the fire.

A play on words ; the word for the latter is the same as that for the former.

85. — *Mandroso, maty renibe ; mihemotra, maty raibe.*

Go forward and lose your grandmother ; go backward and lose your grandfather.

86. — *Toy ny atodin' anganga : ka avela, mahafaty raibe ; entina, mahafaty renibe.*

Like the eggs of the *anganga* (a fabulous bird) : left alone, they kill your grandfather ; taken away, they kill your grandmother.

87. — *Matoky ody voalavo va hianao no manao hena an-joron-damba ?*

Do you trust in a charm against the rats that you put meat in a corner of your robe ?

Don't run into temptation,

88.—*Ny faniriana tsy takatry ny vintana.*

Desire doesn't equal destiny.

Not what you think or say, but what is your lot.

See 81.

89.—*Avoavoin' ny vava ka sahalain' ny vintana.*

Led astray by the mouth and judged by destiny.

90.—*Tolo-kena maty jiro, ku vintana no andrasana.*

A giving out of meat when the lamp has gone out: you wait for what falls to you (lit. your luck).

91.—*Aza maninana an' i Trimondahy.*

Don't dare Trimondahy (a sort of bogey).

92.—*Fanafodin' ny osa ny marina ataony.*

The medicine for the weak is his doing what is right.

Osa (weak) refers not only to physical condition, but also to worldly circumstances
See also 1106 and 2084—2090.

III.—Righteousness and Wickedness.*

Righteousness.

93.—*Aleo ratsy tarehy ka tsara fanahy toy izay tsara tarehy ka ratsy fanahy.*

Better be ugly and good than beautiful and bad.

See 1283—1308 and Chap. xxii.

94.—*Ny atao toy ny salaka : soa atao, manodidina ; ratsy atao, manodidina.*

The thing done is like a loincloth: good, it goes all round; bad, it goes all round.

You can't get away from its influence; it is emphatically yours. *Ny atao* may be translated the *doing* as well as the *deed done*, and *salaka* is the long cloth that the natives wrap around their loins in lieu of trousers.

95.—*Anisaisaina ny ratsy hihavian' ny soa.*

The bad is told that the good may appear.

96.—*Ny hery tsy mahaleo ny fanahy.*

Strength does not equal goodness.

This may be rendered, *might does not equal mind*, equivalent to our "*the mind is the standard of the man.*"

See Chap. xxvii.

97.—*Hianareo no natao masoivoho, hidin-trano miantoka ny alina.*

You were thought to be an eye at the back, a house-lock that is surety for the night.

Masoivoho is here translated literally, but it usually signifies the representative of an absent person (an agent).

* See also 1166, 2072.

98.—*Hianareo no natao ala hikirizana, vato hifaharana.*

You were thought to be a forest to be obstinate in, a stone to withstand with (i.e. a dependable person).

Like the foregoing.

99.—*Hianareo no natao valala fiandry fasana, vorompotsy tsy mandao omby.*

You were made a locust to watch the tomb, a white bird (little egret) not forsaking the oxen.

A fixturo. A locust of some kind is often found on tombs, and the white egret is a constant companion of cattle.

100.—*Tsy no hosoran-tsakay no ho mangidy hoditra, ary tsy no hosoran-tantely no ho mamy hoditra, fa ny atao no mahaso sy maharatsy.*

It is not the being rubbed with chillies that makes one smell bitter, nor the being smeared with honey that makes one smell sweet, but it's the thing done that makes good or bad.

A person is said to be of *bitter smell* when he is disliked by others, and of *sweet smell* when, on the other hand, he is acceptable to them.

101.—*Ny olona marina hoatra ny vato lava sorona, ka izay ametrhana azy marina avokoa.*

Good people are like the long stone of sacrifice, wherever it is placed, all are good.

The meaning doubtless is that, like the fetish stone, they have a beneficial effect on all around them. But it may possibly imply that wherever the righteous go, they will maintain their character for goodness. It is a common thing to see any long stone, or indeed any stone of peculiar shape, anointed with oil or fat, showing that it is often resorted to by the ignorant and superstitious.

Compare 130.

102.—*Ny olona marina toy ny ombalahy ampandronjinana : tsy folaka anio, tsy maty mandrakizay.*

The upright are like contending bulls : neither conquered to-day, and never killed.

103.—*Ny marina toy ny tsiriry anaty harefo : tsy maty, fa malazo.*

The upright are like the *tsiriry* grass amongst the rushes : not dead, but withered (i.e. not quite destroyed, but only a little spoiled).

104.—*Izay mahavangivangy tian-kavana ; ny malemy fanahy tratra am-parany.*

Frequent visitors are loved by their friends ; the kind of heart live long.

Compare Prov. xviii. 24 : "A man that hath friends must show himself friendly." The natives attach much importance to friendly visitation. See proverbs on Friendship.

105.—*Aza manao soa tapany.*

Don't do good by halves.

106.—*Manaova soa ampentany, fa misy hiankinana ; ary manaova soa vato, fa misy hipetrahana.*

Do good by means of a wall, for there is something to lean against ; and do good by means of a stone, for there is something to sit on.

Good actions, though they be never so small, always repay the doer of them.

107.—*Tsy nisy nanao soa hoatra ny vilany, fa raha vaky, natao fanotrehana akoho.*

There was nothing so useful as the rice-pot, for when broken, it was made a hatching-place for the hen.

The earthenware rice-pot is easily broken, but when it can no longer be used to cook the rice, it becomes useful in this other way.

108.—*Toy ny tongo-bintsy an-ala, ka madio lavi-drano.*

Like the feet of the kingfisher in the forest, they are clean far from the water (when they may be expected to be dirty).

*Wickedness.**

109.—*Fotsifotsy fanahy toa takatra ; ka ny tain-kary avy no atao trano.*

An evil-minded thing, like the tufted umbre; the cat's dung even is used for the making of its nest.

This bird of ill omen makes its nest, if nest it can be called, of all sorts of materials.

110.—*Vato mikodiadia, ka tsy mitsaha-tsy an-demonpa.*

A rolling stone, it stops not till the bottom is reached.

111.—*Nahoana no lala-masaka omaly, ka dia manjary tavan-kamono ?*

Why were you a good path yesterday, and have now become a dangerous precipice ?

Applied to people who suddenly change for the worse. Landslips of the soft earth on the hill-sides often happen in the rainy season, when the rain comes down in torrents and sometimes causes the well-known paths to disappear altogether.

112.—*Ny zavona no manamaizina ny masava.*

It is mist that darkens the light.

113.—*Tsara hateloana, hoatra ny volom-bava haratana.*

Good for three days, like a shaven moustache.

114.—*Tsy hena, fa rorohany.*

It's not meat, but tripe.

Used to describe people who refrain from one bad thing, but do another somewhat akin to it. Sometimes this addition occurs: *mifady, nefa mihinana hiany*, i.e. *to fast, yet eat*.

115.—*Ny ratsy fo tsy mba manan-kavana.*

The bad of heart have no friends.

116.—*Tsy kivy tsy ketraka ka homan-kena tsy lasam-bidy.*

Neither disheartened nor dismayed, he eats meat that's not paid for.

Still bold to do wrong.

117.—*Ny adidy tsy omena ny olon-dratsy.*

Blame is not given to the bad.

They are blamed already.

118. — *Ratsy hianao raha ratsy olo-manaraka.*

You are bad if you have bad companions.

Lit. *if you are bad as to your followers.* The great people often go about with numerous followers who are no credit to them.

See 278-290.

119. — *Aza ratsy alohan' olona.*

Don't be the first to be bad.

120. — *Ratsy izay tsy anenenan' olona.*

They are bad indeed whom none regret.

121. — *Ny kibo no be eritreri-dratsy, ka ny vava no mahazo loza.*

It's the mind that is full of evil thoughts, but it's the mouth that gets the blame.

Lit. *belly* (=mind) and *calamity* (=blame).

122. — *Akofam-bary, tsy menatra izay hiankandrefana.*

They are rice chaff and aren't ashamed of going west.

As the wind is usually from the east, the chaff is blown west when the people are winnowing their rice. So the wicked go west as a matter of course, i.e. they act according to their nature and are not ashamed of doing so.

123. — *Tranon-takatra nidiram-borondolo, ka simban' ny olon-dratsy ny olon-tsy vanona.*

The tufted umbre's nest is entered by an owl, so the evil thing is spoiled by the bad one.

Lit. *the imperfect one.* Both are birds of ill omen.

Compare 43.

124. — *Tsy maniry tandroka ny ratsy.*

The bad don't grow horns.

They are not known at a glance as an ox is by its horns.

125. — *Aza manao solafaka andro mitsidika.*

Don't fall early in the afternoon.

Lit. *when the sun begins to peep in.* The houses always face west. Don't do wrong when there is every reason why you should do right.

126. — *Aza mandihy am-piringa toa vorondolo.*

Don't dance on a dunghill like an owl.

127. — *Antsibe latsaka an-dobo ; raha ilaozana, harafesina.*

A big knife dropped into the pond ; if left, it will get rusty.

128. — *Telo no ambo-rambo ; ny anankiray mpiasa, ny anankiray mpihinan-kena, ary ny anankiray jiolahy.*

There are three (kinds of) vagabonds ; one kind are workers, another are consumers of meat (i.e. thieves), and the other are robbers.

Compare 2299.

129. — *Aza mitari-bilona eo imason' ny omby.*

Don't drag fodder before the eyes of an ox.

Lead not into temptation.

130.—*Ny fandio iray siny tsy mahaleo ny fandoto iray tandroka.*

A pitcherful of clean water is not a match for a hornful of dirty water.

A small quantity of dirty water is sufficient to foul a large quantity.

Compare 101.

131.—*Nahoana no ho mati-volon' ny ratsy, ka ny soa no ampanirina ?*

Why are you addicted to the bad, and require pressing to love the good ?

132.—*Nahoana no dia mihitsihitsy toa fandrika ?*

Why are you so daring like a chisel ?

As a chisel goes straight to its work of cutting, so does a reckless rascal to his work of evil.

133.—*Toy ny fandiorano ny ratsy : koa miseho, tsy menatra olona ; misitrika, tsy valahara.*

Like the water-beetle : when it shows itself, it isn't ashamed ; and when it disappears, it is impudent.

134.—*Ny homana aza misy diso (na raraka).*

There are faults even in eating.

Our "*There's many a slip betwixt the cup and the lip*" used in another way, viz. to excuse a fault. Something goes awry even in eating, so don't expect perfection elsewhere.

135.—*Maizina ny andro, azo tsilovina ; lalina ny rano, azo lakanina ; lalina ny hady, azo toharina ; fa ny ratsy atao tsy mba azon-kevitra.*

When the day is dark, it can be lighted up ; when the water is deep, a canoe can be used ; when the fosse is deep, it can be reached by a ladder ; but nothing can be done with an evil deed.

(*To be continued.*)

J. A. HOULDER.



THE ARAB ELEMENT IN SOUTH-EAST MADAGASCAR:

AS SEEN IN THE CUSTOMS AND TRADITIONS OF THE TAIMORO TRIBE.

PART II.

AS mentioned in the ANNUAL of last year (p. 108), I have been able to obtain, through a converted Taimoro, an ancient copy of the sacred book, which, from the difficult, almost secret, way I got possession of it, is peculiarly interesting. It was evidently looked upon by its possessors as authentic and sacred, and they were actuated by no small fear when they were induced to part with it. I have taken considerable trouble to ascertain its actual contents, and after submitting it to several authorities, I at last obtained, at the British Museum, the information I required. I have been assured that the book is a copy of some portions of the Koran, badly done, as though written from dictation, not transcription, by one who, though familiar with the Arabic characters and their equivalent sounds, yet did not know the language nor the meaning of the words. Said my informant: "Had I not known the original text, I should not have been able to read or translate it; and it is so full of mistakes and repetitions that it would occupy a long time to reduce it to a readable form." The invocation to Allah and Mohammed which precedes the various chapters of the Koran is repeated *ad nauseam*, with but a verse or two intervening; while in the centre of the book are a set of cabalistic signs for use in case of sickness, etc., to be copied on to pieces of paper and then washed off into the water to be drunk by the person who is ill.

It seems strange that these people who, when they first arrived in the island, were without doubt Mohammedans and in possession of the Koran, should have degenerated into the idol and charm manufacturers they have now become, and that their influence in this direction should be so universally felt throughout the island. For the Taimoro, in small bands, travel the whole length of the land from Fort Dauphin to Anôro-ntsánga, and over to the west to Ménabé. Into every part of the country these idol-makers and charm consecrators make their way, and return with herds of cattle and a good store of money and goods, engaging men *en route* to drive their herds home, when they contemplate a longer stay or a more extended excursion. These absences from home have been known to continue for two or three years, the party bringing or sending home more than a hundred head of cattle and a good round sum in dollars.

Parties of the Taimoro not only migrate for the purpose of selling their *ôdy* (charms), but they appear to enjoy the novelty of working for the foreign trader. They have no objection to earning wages from foreigners away from their own country, although they look upon it as derogatory to their pride to labour in the same way for their more wealthy clansmen, or for the traders in their immediate vicinity. Perhaps, as I have heard from some of them, another element enters into the feeling of repugnance to labouring at home for wages, viz. that being hired regularly by the month implies freedom from *fanompôana* (unpaid government

service), their share of which would be exacted from the nearest relative, for which payment would be expected. And this payment would probably be secured if the delinquent were working anywhere within reach of dunning.

A curious idea of having been defiled by their contact with other tribes seems to have a firm hold on these people, so that when they return from having hired themselves to foreigners, they are very particular about bathing and washing their clothes before reaching the Mâtitanana. Coming from the north (the usual direction taken by bands of labourers), the last water they pass before arriving at Vôhipéno or its neighbourhood is the River Mângatsibôtra. Here they stay for a complete purification, ostentatiously washing their mouths and tongues, if they have indulged in food which is at home considered *fady* (tabooed). They also rub their tongues with an *ody* (said to be poisonous) to take away the effect of any evil words they may have spoken, or any curses they may have uttered against their household or fellow-townsmen.

The manner of a husband's return after a six or nine months' absence is characteristic, and sheds a flood of light upon the usual estimate of conjugal faithfulness. The man does not make for his own house, but enters his father's, until the fact of his return is made known through the village, and in due course to his wife. She then comes to him. There is no particular warmth of welcome or gladness expressed on either side, but the man proceeds, in the presence of the neighbours, to put his wife on oath regarding her fidelity to him during his absence. He then says: "If you have done no evil, then you will submit to the usual ordeal, out of which you will come unhurt and receive our blessing; but if you have been unfaithful, may the crocodiles devour you in the water."

If the woman is willing to submit to the ordeal, she is taken to the river bank, from which she throws herself into the water, and swims ashore. If she comes out unhurt, the man makes her a present of the things he has brought for her from the far country and receives her with gladness and feasting, in which, unfortunately, the rum bottle occupies a conspicuous place. If she either refuses the ordeal, or is bitten during the ceremony never so slightly, the man repudiates her, gives her no present, and she is gazetted throughout the tribe as "a wicked woman, whom no one is to wed for ever."

Unchastity among the young women is said to be almost unknown among the Taimoro, for the fact of unchastity of a young woman becoming known would at once preclude her from obtaining a husband. This is precisely the reverse of the state of things among the unchristianized tribes in the interior, where the possession of a child, though it may be illegitimate, is looked upon as a strong recommendation to any woman seeking a husband. Unfortunately the same strictness is not exercised towards the young men, and there is a very loose code of morals for them, although they look for the utmost purity in their wives.

The marriage customs of the Taimoro are different in many respects from those of the Hova, both in the initiation and in the ceremonies connected with the wedding. Unlike the Hova, a Taimoro youth chooses his own bride, and tries to win her, in the first instance, without any consultation with parents or relatives on either side. There is also

a sense of shame-facedness incident to lovers in other parts of the world, and a dread of being laughed at that leads a youth in making his first onslaught on the heart of the girl upon whom he has set his choice to pay his first visits secretly. He seems to dread the pointed finger and the sneering: "Ah! So-and-so has gone to try and obtain the consent of Miss—;" the salutation which always assails the ear of any young fellow who is caught making this first call. And the Taimoro lasses know how to coquet with their suitors, so that it is seldom that consent is given in less than a month. This consent at last gained, the bridegroom comes at night and fetches home the bride, who remains in his house a week, before they go formally to ask the consent of the father and mother. This is called the "shewing of the woman." Two or three bottles of rum, a half-measure of white rice, and one fowl are taken as a present to the father and mother of the bride, and, their consent gained, the young couple return home to the house that he has been building during the time the damsel has kept him waiting for his answer. After another week, a further present of money, either a shilling, two shillings, two dollars, or three dollars, with rice, a fowl, and two bottles of rum, are taken to the parents and presented in the presence of two or three witnesses taken by the bridegroom. This they call the "*hamàky vòlana*" or the home-coming. Then once again rice, fowls, and rum are presented, and the marriage ceremonies are complete. The woman is supposed to furnish towards the housekeeping 20 or 30 mats for the floor, a stock of sleeping-mats, 4 or 5 baskets of white rice, one cock, a looking-glass, a calabash of grease, a big cooking-spoon, a tin dipper, and a wooden sifter.

A procession of damsels is formed to bring home the bride and these belongings. When she arrives, she and her attendants circumambulate the house three times before she appears at the east door and salutes those inside with, "Salutations to those who possess separate households!" The man comes out of the house, turns out any of his friends who may be present, and leaves the field clear for the woman and her friends to put the house in order. For two days rum is *fidy*, and feasting goes on for a week.

Unfortunately the custom, though elaborate, does not appear to be wonderfully binding, as it is very easy for the woman within a week of her marriage to leave the newly-made husband. But if she stays more than a week, he presents her with two or three dollars, a yard of cotton cloth for a jacket, and a *lamba*, either the striped native cotton one (*arindriàno*), or one made of *rofia*. These are hers if she stays with her husband, but if she leaves him, they revert to him. But although it is so easy to leave her husband, it is not so easy to get another, if the first husband is annoyed at the separation, as she is unable to marry again without his consent.

There is another way in which haphazard marriages are contracted when there are a great number of marriageable girls in the tribe. The parents or nearest relatives of the girls take them to the nearest village in which there are some marriageable men, and tell them they are to choose whom they would like for husbands. There appears to be little objection on the part of the young men, and though usually the case, it is not the invariable outcome, that the girl chooses a bachelor. Some appear to prefer those whose reputation as husbands has been tried, and

lay claim to the widowers; and it is not out of the question that the girl may choose one who has already one or more wives. There is no feeling of disgrace in being one of several wives. A week is allowed for these newly-made couples to ascertain whether or not they can mutually agree to live together for life; and according to their finding at the end of that time, they either separate, or go through the ceremonies mentioned above.

Divorce is terribly easy, as a man simply *misaotra* (=wishes a blessing upon) the woman, and tells her she is no longer his wife, and the deed is done. But by a strange perversity, a woman who is divorced, easy as the process is, remains unmarried, "waiting for the man," as it is called, for even four and five years, and although he may have been married three or four times meanwhile, she is often willing to go back to him as his wife.

As a general rule, it is true that the man is the "breadwinner," and is called "the supporter of wife and children;" but the woman does quite her share, except when she is nursing, and then, as with all the tribes in the south-east, a woman expects to do very little more than look after her baby. But if the man goes off to a distance to work for any of the traders, then the woman, remaining in his house, supports herself as best she can by mat- and sack-making. Some kind of arrangement is also entered into with his father to see that the rice is properly garnered, and it is only occasionally that the man is away longer than the time between the two rice-sowings.

Every effort is made by the heads of the tribe to prevent intermarriage with other tribes. If a Taimoro of the Antalaotra division marries into another tribe, or even with a Hova, the one so doing is excommunicated, and is treated as a perfect stranger. The parents refuse to acknowledge them or their children, and they are entirely cut off from the tribe. They are mourned for as dead, and *are* as dead to their parents and kinsfolk. This is said to be the reason why none of the Taimoro women dress in the gay *lamba* affected by the other tribes, or in the soft white *lamba* of the Hova, but only in the rougher and coarser *rofia lamba*. They think that there is more danger of their wives and daughters being carried off by the Hova for their wives if thus dressed than if their charms are dulled by a common-looking dress. So it is made *fady* for a Taimoro woman or big girl to dress in a calico skirt or *lamba*. The upper part of the body may be covered with a calico jacket, as this is presumably hidden beneath the *lamba*, but the belles seem to make up for the other restriction by wearing the brightest coloured jackets procurable. But whether the desired end is gained by the *fady* or not, it is certain that there are but few Taimoro women married to men of other tribes, and hence the distinctive peculiarities of the Taimoro have been preserved in a way not found in any other peoples in the island.

If a woman does marry a man of another tribe, or of a branch of her own tribe which is considered beneath her family, a great assembly is called of all the heads of families. Cattle are killed to add importance to the function, and the woman is advised in the public assembly to repudiate her husband. If she does, well and good; but if, after persuasion and threat, she declines, she is advertised as not of them, she is

forthwith an outcast and is boycotted. No one will allow her to fetch from their hearths fire to kindle her own; no one will fetch fire from her hearth. If she has a child, no one visits her to congratulate her; no one commiserates with her in case of illness or death. And—the worst thing of all in their estimation—no one will help to bury her when she dies. In no tribe with which I have become acquainted in Madagascar is so much effort made to preserve the tribal distinctions and to keep themselves pure from contamination with other tribes. It is doubtless owing to this that the Taimoro are so peculiarly different from all the other peoples in the island.

Like the Taifasy and other south-east tribes, the Taimoro bury their dead in a great house built of logs and surrounded by a palisade. The corpses are wrapped in a native *lamba* and laid side by side, and layer upon layer, the women and children on one side of the doorway (which is in the centre of the long side of the house), and the men on the other side. No one is allowed in or near this house or *kibory*, as it is called, except those appointed by the tribe.

Little or no difference is made in the ceremonies observed at the burial of a king from those at the interment of one of his subjects. But the feasting and number of mourners may be greater, according to the wealth of the individual. One exception, however, is made. When the corpse of a king is carried to the *kibory*, it is not carried on the shoulders, but by the hands and below the knees of the bearers, to shew that, although a king when alive, he has no honour above other men when dead. (It is curious that while alive, kings are never dressed in shirt or coat, nor do they wear any kind of headgear, as kings, they say, should not be covered.)

When a Taimoro is approaching death, a number of old women are appointed to perform the last offices, and this they are said to do by hurrying the dying into death, and at once preparing the corpse for burial, and cutting off all the hair over the forehead. Then the scribes of the village assemble in the house, and each of them writes four passages from the sacred books upon separate pieces of bark paper. One of these slips from each scribe is taken and attached to the forehead of the corpse, and one from each on the breast and on each leg. They are then bound on with proper wrappings, that there may be no danger of displacement when the corpse is conveyed for burial. In explanation of this custom they say: Much evil has been done while here on the earth, so we confess this to the Great Spirit and make supplication for forgiveness. It is also believed to have some power as a charm to preserve the body from decay and annihilation after burial.

The body is carried to its last resting-place, and one of the young men, who has been trained to read and remember some of the words in the books of sacred writings, repeats some passages which are considered suitable for the occasion, although, as with very much of the erudition of the tribe at present as regards their sacred writings, he may not have the remotest idea what the words mean. But they are supposed to contain a prayer to God and his prophet Mohammed for the dead.

At the entrance to the *kibory* a halt is made, and the women and children return home, with the exception of the old women already referred to as performing the last sad rites. These carry fat from the

kidney of an ox and fire, and as they enter the gateway a chant* is repeated seven times by a few of the attendants and followers, after which they all advance into the burial-house and deposit the corpse in its appointed place.

A general mourning is observed in the village for a week, during which time no bathing or cleansing of garments takes place ; but on the eighth day all bathe, and the time and appearance of mourning is past, except for the widow, whose time of mourning (and what usually amounts to the same thing—widowhood) is regulated by the relatives of the dead husband, who can, at will, make the time extremely short, or indefinitely prolong the time during which she is unable to become the wife of another.

When a wife dies, the widower remains secluded for a week or perhaps even a fortnight, by which time the relatives of the late wife bring to him his deceased wife's sister or other near female relative of hers as his future wife. This is evidently done as a matter of worldly prudence on the part of the relatives to prevent both the property and the children from passing into the keeping of others than those over whom they have some influence.

GEORGE A. SHAW.



THE CHANGING YEAR IN CENTRAL MADAGASCAR:

NOTES ON THE CLIMATE, AGRICULTURE, AND VARIED ASPECTS
OF THE MONTHS.

MY object in this paper is to describe, as vividly as I am able, the varied aspects of the different months throughout the year in this central province of Imérina, as they present themselves to any one who lives in the capital city of Antanànarivo, and is frequently travelling in the country around it. I want to show the variety of Nature during the changing seasons, as the result of the heat or cold, and of the moisture or drought of the climate, and to point out the changes resulting from the different processes of agriculture carried on by the Malagasy. And it must be remembered that although this central province of Madagascar is by several degrees well within the tropics, our climate for some months of the year is by no means the "tropical" one supposed in our ordinary English use of that word. On these interior highlands, from 3000 to 5000 feet above the sea-level, the south-easterly winds blow from June to August with a keenness and force which it needs thick clothing to withstand, and makes a wood fire during the long evenings a very pleasant addition to the comforts of home life.

* This chant sounds like : *Kibaratà, kibaratà, kilia, làlaholàla, kibaratà, kibaratà, kibaratà, vòalàlamòdo.*

The seasons in the central regions of the island are practically only two: the hot and rainy period, from the beginning of November to the end of April; and the cool and dry period, during the other months, from May to October. The Malagasy are, however, accustomed to speak of four seasons of their year, viz., the *Lôhataona*, i.e. "head of the year," during September and October, when the planting of rice is going on everywhere, and a few showers give promise of the coming rains; the *Fôhavàratra*, i.e. "thunder-time," when severe storms of thunder and lighting are frequent, with heavy downpours of rain, from the early part of November to the end of February or into March; the *Fàraràno*, i.e. "last rains," from the beginning of March and through April; and lastly, the *Ririnina*, i.e. "time of bareness," when the grass becomes dry and withered, from June to August.

Taking therefore the seasons in order, from the beginning, not of January, which gives no natural division of the year, but from the early part of September, when the blossoms on the trees speak of the "good time coming" of renewed verdure, I shall note down, in their succession, the varying aspects of the country, in climate, vegetation, and culture of the soil, throughout "the changing year."

Before, however, proceeding to do this, it may give greater distinctness to the mental picture I want to draw for those who have never been in Madagascar, if I try to describe in a few words the appearance of this central province of the island, especially of that portion of it which is in the neighbourhood of the Capital. From the usually pure and clear air of this elevated region, which is not defiled by the smoke of chimneys, nor often thickened by the mists of the lowlands, one can see for extraordinary distances, and hills and rocks 20 or 30 miles away stand out more sharp and distinct than they would usually do in England at only four or five miles' distance.

Let us go up to the highest point of the long rocky ridge on and around which Antananàrivo is built, from which we can "view the landscape o'er," and try and gain a clear notion of this "heart of Imerina," as it is often called by the Malagasy. The city hill reaches its greatest elevation at a point called Ambôhimitsimbina, i.e. "Hill of regarding," which is 700 feet above the general level of the rice-plains around it. From this "coign of vantage" there is of course a very extensive view in every direction, and we see at once that the surrounding country is very mountainous. East and south there is little but hills of all shapes and sizes to be seen, except along the valleys of the River Ikôpa and its tributaries, which come from the edge of the upper forest, thirty miles or so away to the east. To the north the country is more undulating, but at ten or twelve miles away high hills and moors close in the view. Some of the hills rise into mountains, as in the case of Angavokely to the east, Milangana, Andringitra, and Lôhavôhitra, to the north and north-west, and Ihàranàndriana to the south. The country is everywhere in these directions, except in the river valleys, covered with red soil of various shades of colour, through which the granite and gneiss foundations protrude at almost every elevated point in huge boulder-like rocks, and form the summits of every hill and mountain, often in dome-shaped or boss-like masses, and in some like Titanic castles and towers.

There is little foliage to be seen, except on the top of some of the hills, where the ancient towns and villages were built, and in such places a circle of old *divivy** trees, with an occasional *amòntana*† tree, gives a pleasant relief to the prevailing red and ochre tints of the landscape, and (in the cold season) to the russet hues of the dry grass on the bare hills. The largest mass of green is at the old Capital, Ambòhimànga, eleven miles away to the north, where the steep sides of the hill are still covered with a remnant of the original forest, which formerly was doubtless much more extensive in this part of Imerina.

To the west, from north to south, the prospect differs considerably from that to the east. To the south-west there rises by very gradual slopes, at some 35 miles' distance, the mass of Ankàratra, the highest point in the island, its three or four crowning peaks reaching an elevation of nearly 9000 feet above the sea, and something more than half that height above the general level of the country. But even at such a distance the summits usually stand out sharp and clear against the sky, and very often every detail of its sloping surface comes out distinctly in the afternoon sunshine, with its more decided lights and shadows.

Due west and north-west is a considerable extent of comparatively level country, beyond which the mountain of Ambòhimiàngàra, 60 miles away, is distinctly seen on the western horizon, as well as many other picturesque and rock-crowned hills. In the foreground, stretching away many miles west and north-west, is the great rice-plain of Bètsimitàtra, from which numbers of low red hills, most of them with villages, rise like islands out of a green sea when the rice is growing; along the plain the River Ikopa can be seen, winding its way north-westwards to join the Bètsibòka; the united streams, with many tributaries, flowing into the sea at the Bay of Bèmbatòka. This great plain, "the granary of Antananarivo," was formerly an immense marsh, and earlier still a lake; but since the embanking of the river by some of the early kings of Imerina it has become the finest rice-plain in the island and, with its connected valleys, furnishes the bulk of the food of the people of the central province. (See ANNUAL XVII., pp. 115-117.)

From this elevated point at least a hundred small towns and villages can be recognized, many of them marked by the tiled roof of the village church, which shines out distinctly in the sunshine amid the brown thatched roofs of most of the houses, and can be easily distinguished at distances of 10 or 12 miles away. This view from the summit of the Capital is certainly a most interesting one and in its way is unrivalled for variety and extent, as well as for the human interest of its different parts, as shown by the large population, the great area of cultivated land, the embanked rivers, and the streams and water-channels for irrigation seen in every direction.

SPRINGTIME: SEPTEMBER AND OCTOBER.—With the early days of September we may usually say that springtime in Imerina fairly sets in, and that the year in its natural aspects properly commences. By a true instinct, arising doubtless from long observation of the change of the seasons, the Malagasy call this time *Lohataona*, i.e. "the head, or beginning, of the year," when Nature seems to awake from the compa-

* *Ficus megapoda*, Baker. † *Ficus Baroni*, Baker, and *Ficus trichosphæra*, Baker.

rative deadness of the cold and dry winter months, during which the country has looked bare and uninviting, but now begins again to give promise of fertility and verdure. The keen cold winds and drizzly showers of the past few weeks give place to warmer air and clearer skies, and although usually there is but little rain during September, the deciduous trees begin to put forth their leaves, and flower-buds appear as heralds of the fuller display of vegetable life which will be seen after the rains have fallen.

The great rice-plain to the west of Antananarivo still looks, during the early days of the *Lohataona*, bare and brown; but, if we examine the prospect more closely, we shall see that in various places, where the plain borders the low rising grounds on which the villages are built, there are bright patches of vivid green. These are the *ketsa* grounds or smaller rice-fields, where the rice is first sown thick and broadcast, and where it grows for a month or two before being planted out in the larger fields. These *ketsa* patches begin to be very numerous also in the smaller valleys which are found in every part of the province; and as soon as the young plants are four or five inches high, they are frequently strewn over with long dry grass to protect them from the hot sun by day as well as from the cold winds by night. In other rice-patches large fronds of bracken fern are used for the same purpose, and small branches of trees are also stuck along the edges of the enclosures, which are divided from each other by a low bank of earth, a few inches broad and only a foot or two in height.

As the season advances, the people everywhere begin to be busy digging up their rice-fields, both large and small, the clods being piled up in heaps and rows in order to give the soil the benefit of exposure to the sun and air. All this work is done by the native long-handled and long- and narrow-bladed spade, driven into the ground by the weight of the handle, as the Malagasy wear no shoes and so could not drive down the spade by the foot, in European fashion, while the plough is still an unknown implement to them. The water-courses, by which water is brought to every rice-plot, are now being repaired in all directions. The chief supply of water is from the springs found at the head of almost every valley, which is carefully led by channels cut and embanked round the curves of the hill-sides, being often taken thus for a considerable distance from its source. Eventually this little canal resolves itself into a small stream traversing the valley, from which smaller channels convey the water to every field, so as to moisten the clods after they have been dug over.

The water-supply for the great Betsimitatatra plain is derived from the Ikopa river and its tributaries the Andrômba, the Sisaony, the Mâmba, and other streams. Canals tap these rivers at various points, in order to irrigate the fields at lower levels further down their course. A large quantity of water is thus diverted from the rivers during September and October, so that the smaller streams are almost dry, and even the Ikopa and its affluents, good-sized rivers at other times of the year, then become shallow and easily fordable.

Before the end of October a large extent of the great plain, especially to the north and north-west, is completely planted with rice; and a green level, looking like one vast lawn, stretches away for many miles in

this direction, without any break or visible divisions. This green is the *vàry alôha*, or "former rice," the first crop, which will become ripe in the month of January, or early in February. Smaller expanses of bright green appear in other directions also, especially along the courses of the rivers, but a considerable extent of the plain directly to the west of the Capital is still russet brown in colour, and will not be planted until a month or two later. From this will come the later rice crop or, as it is called, the (*vàry*) *vàky ambràty*, which is planted in November or December and becomes fit for cutting about April. This latter crop is so called because the flowering of the *ambràty* shrub,* about November, gives notice to the people that planting-time has come. This shrub is very conspicuous about this time of the year from its masses of white flowers.

The *kêsa* grounds are covered before sowing with a layer of wood and straw ashes, so that they have quite a black appearance. Before this, however, the clods have been broken up and worked by the spade into a soft mud, with an inch or two of water over all, and on this the grain is sown broadcast, springing up in two or three weeks' time and looking like a brilliant emerald carpet.

There are usually a few heavy showers about the end of September or the early part of October, which are called *ránonôrana màmphisàra-taona*, i.e. "rain dividing the year;" but occasionally no rain falls until the rainy season regularly commences, so it is dry and dusty everywhere, the ground cracks, and everything seems thirsting for moisture. The heat increases as the sun gets more nearly vertical with the advancing season, although the nights are pleasantly cool. Yet notwithstanding the dry soil, the trees are beginning to blossom. Most conspicuous among them is the Cape-lilac,† a tree introduced from South Africa about 70 years ago by the first L.M.S. missionaries, and now thoroughly naturalized in the neighbourhood of the Capital and other parts of the interior. It grows to be a good-sized tree, and many hundreds of them are to be seen in all the suburbs of Antananarivo, making them gay with the profusion of lilac flowers which cover the trees, and fragrant with their strong perfume. The berries of the previous year remain on the trees to a great extent until the new flowers are fully out, and there is often a beautiful combination of the secondary colours: the orange of the old berries, the lilac of the flowers, and the bright green of the new leaves.

There are many large orchards in Imerina, thickly planted with mango trees, and presenting a refreshing mass of evergreen all the year round. But about this time, when looking from a little distance, the green of the leaves is largely mingled with a tinting of reddish brown, which is seen, on closer inspection, to be caused by the masses of flowers, in spikes, chiefly in the upper part of the trees. A little later on, a purplish brown tinting mingles with the green; this arises from the new leaves, which are of this colour when just unfolded.

The low banks of earth which form the boundary walls of plantations are largely planted with a species of *Euphorbia*,‡ of which there are two varieties, one with brilliant scarlet bracts, and the other of pale yellow tint, the leaves appearing on the prickly stems later on.

As the season advances, the people burn the grass over the hill-sides

* *Vernonia appendiculata*, Less. † *Melia Azederach*, L. ‡ *Euphorbia splendens*, Bojer.

and the open moory country, so as to get rid of the long dry and withered grass and to obtain a crop of green herbage as soon as the rains have fallen plentifully. This has an unpleasant appearance by day, from the immense black patches of charred vegetation to be seen in every direction; and frequently the hedges and smaller trees are destroyed as well. There can be no doubt that to this practice of *mandoro tanety* ("burning the down"), as it is called, is largely attributable the bare and treeless appearance of the central provinces. The young trees which would spring up, especially in the hollows and sheltered places, have no chance against the yearly fires which sweep over the country, and the little vegetation which has held its own is constantly liable to be lessened as time goes on. Like the "Black Country" in England, moor-burning is best seen at night. Sometimes a dozen fires, long curving lines of flame, may be seen at once in different directions; and a ruddy glow in the sky often shows the places where the actual fire is hidden from view by intervening hills. *Mandoro tanety* thus gives a strangely picturesque appearance to the nights of springtime in Imerina.

The weather often gets very hot and sultry before the rains come on, indeed the heat is greater and more trying at this time than in the summer itself, when the frequent storms freshen the air, and the rain cools the earth. The usually clear bright skies and pure atmosphere of other months are exchanged for thick oppressive days, when the distant hills disappear altogether, and the nearer ones seem quite distant in the dense haze. These atmospheric conditions are probably due, to a great extent, to the grass-burning just described, and also to the frequent burning of the forest away to the east. As the weather gets warmer, a few birds come up from the wooded regions of the island, and wherever there is a small patch of wood, the oft-repeated cry of the *Kankâfotra*, the Madagascar Cuckoo, may be heard, much resembling the syllables "*kow-kow, kow-kow-koo*." The querulous cry of the noisy little *Hitsikitsika* or Kestrel is heard continually, for he and his mate are now bringing up their young brood and busily seeking food for them. As we walk over the open downs, the *Sorôhitra*, the native Lark, often darts up from her unprotected nest on the bare ground; or we may see her high up aloft, with a note somewhat like that of her European cousin's, but not so full and sweet.

As the end of October draws near, the people are busily at work, not only in the rice-fields, but also repairing their houses, mending their grass or rush roofs, and hurrying on their sun-dried brick or clay building before the heavy rains fall. Although a large number of burnt brick houses, with tiled roofs, have now been erected, the majority of native dwellings are still of the cheaper materials; and everything of the kind must be finished, or at least well protected from the weather, before the rainy season comes on. The water-courses too need attention, and the river banks must be repaired, lest a succession of heavy rains should swell the streams, break through the embankments, and flood the rice-plains.

SUMMER: NOVEMBER, DECEMBER, JANUARY, AND FEBRUARY.—Summer in Imerina, as well as in Central Madagascar generally, is not only the hot season, but it is also the rainy season, very little rain falling at any other time of the year. It is accordingly called by the Malagasy *Fahavàratra*, i.e. "thunder-time," since almost all heavy rain is accom-

panied by a thunderstorm ; and taking the average of a good many years, this season may be said to commence at the beginning of November.

As the sun gets every day more nearly vertical at noon, on his passage towards the southern tropic, the heat increases, and the electric tension of the air becomes more oppressive. For a week or more previous to the actual commencement of the rains, the clouds gather towards evening, and the heavens are lighted up at night by constant flashes of lightning. But at length, after a few days of this sultry weather, towards mid-day the huge cumuli gather thickly over the sky and gradually unite into a dense mass, purple black in colour, and soon the thunder is heard. It rapidly approaches nearer and nearer, the clouds touching the lower hills, then down darts the forked lightning, followed by the roar of the thunder, and presently a wild rush of wind, as if it came from all quarters at once, tells us that the storm is upon us, and then comes the rain, in big heavy drops for a few seconds and soon in torrents, as if the sluice-gates of the clouds were opened. The lightning is almost incessant ; now and then, in one of the nearer crashes, it is as if the whole artillery of heaven were playing upon the doomed earth ; and for half an hour or so there is often hardly any interval between the crashing and reverberations of the thunder peals, the hills around the Capital echoing back the roar from the clouds. Certainly a heavy thunderstorm in Madagascar is an awfully grand and glorious spectacle and is not without a considerable element of danger too, especially for any one caught in the storm in the open, or in a house unprotected by a lightning-conductor. Every house of any pretensions in the central provinces has this safeguard, for every year many people are killed by lightning, some while walking in the road, and others in houses unprotected by a conductor. One often hears of strange freaks, so to speak, played by the lightning ; for instance, one of our College students, travelling with wife and children to the Bêtsilèo, was killed instantaneously, as well as a slave near him, when sitting in a native house, while a child he was nursing at the time escaped with a few burns only.

A large quantity of rain sometimes falls during such storms in a very short time. On the 19th of January, 1892, $3\frac{1}{2}$ inches fell in less than half an hour ; and as the streets and paths through the Capital are all very steep, and from the rocky nature of the whole hill there can be no underground drainage, it may be imagined what a roar of water there is all over the city after such a storm. The three or four chief thoroughfares are transformed into the beds of rushing torrents and series of cascades ; from every compound spouts out a jet of water to join the main stream, and it is no easy matter to get about at all in the rush and the roar. Were Boards of Health or Courts of Sewers known in Antananarivo, it would be no easy matter to devise a system of drainage for the city ; and there being hardly any one to take the place of such functionaries, it is no wonder that most of the highways of the Capital get deeper and deeper every year. Even where there is an attempt at a rough paving, a single storm will often tear it up and pile the stones together in a big hole, with no more order than obtains in the bed of a cataract. After the rains are over, the red soil is dug away from the sides to fill up the channel cut by the torrent, and so the road gradually sinks below the walls of the compounds on either side of it.

Taking the average of eleven years (1881-1890), the annual rainfall of Antananarivo was 52 inches; and of this, omitting decimals, $5\frac{1}{2}$ in. fell in October, $5\frac{1}{2}$ in. in November, $10\frac{1}{2}$ in. in December, 11 in. in January, 9 in. in February, 8 in. in March, and 2 in. in April; so that December and January are the wettest months, during which rain falls usually on two days out of every three.

It is very unusual for thunderstorms to occur in the morning, they mostly come on in the afternoon; and after the first heavy downpour, a steady rain will often continue for three or four hours, and occasionally far into the night. It is generally bright and fine in the early morning; all vegetation is refreshed by the plentiful moisture; and the people are busy in their plantations on the sloping hill-sides, digging up the softened earth for planting manioc, sweet potatoes, the edible arum, and many other vegetables.

Hail also very frequently falls during these thunderstorms; and should it be late in the season, when the rice is in ear, great damage is often done to the growing crop. A large extent of rice-field will sometimes be stripped of every grain, the stalks standing up like bare sticks. Charms against hail had therefore in the old heathen times a prominent place in the popular beliefs and, there can be little doubt, are still trusted in and used by many of the more ignorant people. Occasionally the hailstones are of very large size and kill sheep and small animals, if they are left unsheltered. I remember a storm of this kind (22 Oct. 1887), when the hailstones were as large as good-sized nuts, while some were cushion-shaped and hexagonal, with a hollow in the centre, and nearly $1\frac{1}{2}$ inch in diameter. In other cases they have been seen as jagged lumps of ice; and it may be easily imagined that it is very unpleasant and somewhat dangerous to be exposed to such a fusillade.

Besides the thunderstorms like those just described, which come so close and are often so awful in their results, there is another kind of storm we frequently see in the rainy season which is an unmixed source of delight. This is when, for two or three hours together in the evening, a large portion of the sky is lighted up by an almost incessant shimmer of lightning, now revealing glimpses of a glory as if heaven itself were opening, and anon shewing many different tiers and strata of clouds lying one behind the other, and alternately lighted up, making clear the outlines of the nearer masses of cumulus upon the brilliant background. How wonderful are the different colours of this lightning! intense white, like glowing metal, now red, and now violet; and not less wonderful are its forms! now it is a zigzag, which plunges downwards, now it branches out horizontally, and again it darts upwards into the clouds; and then, for a few moments, there is nothing but an incessant quiver and shimmer, which lights up first one quarter of the heavens, and then another, and then the whole. All the time no thunder is heard from this celestial display, but it is most fascinating to watch the infinitely varied effects of light and darkness, till we sometimes feel as if a "door was opened in heaven," and we could catch a glimpse of "the excellent glory" within.

As the Malagasy New Year's Day now comes (and has done for eleven years past) in the month of November, it may be fitting to say something here about the native division of time. The Malagasy months are

lunar ones, and therefore their year, reckoning by the months, is eleven days shorter than our own, the first day of their year coming consequently at different times, from the first to the twelfth month, until the cycle is complete. When I first came to Madagascar (in 1863), the Malagasy New Year's Day, that is, the first of Alahamady, was in the month of March, and in this year, 1894, the first of that Malagasy month fell on the 6th of April, the cycle of 33 years being thus nearly finished. But since the accession of the present Sovereign, Queen Ranavalona III., in 1883, the 22nd of November, which is Her Majesty's birthday, has been fixed as the invariable New Year's Day; and most of the old ceremonies always observed previous to the year 1883 on the first day of the first month (Alahamady) are now kept up on the eve of Nov. 22nd. The old New Year's Day, the birthday of the father of Radama I., is still, however, held in remembrance by the firing of cannon on the first of Alahamady. It seems strange that the Malagasy appear never to have made any attempt, by the insertion of intercalary days or any other contrivance, to fill up their shorter year to the true time occupied in the earth's annual revolution round the sun; for of course they must have noticed that their months came at quite different periods after a very few years. But no such attempt to reform their calendar was ever made, as far at least as our information goes. The names of the Malagasy months in use in the central province and in most other parts of the island are all Arabic in origin, as indeed are the names of the days of the week. In some districts, however, other names are employed, which mostly appear to be purely Malagasy words. It may be noticed here that the Malagasy month-names are not the Arabic names for the months, but are the Arabic words for the twelve constellations of the Zodiac. Thus, Alahamady is the Ram, Adaoro is the Bull (*daoro*=*taurus*), Adizaosa is the Twins, and so on. This appears to have arisen from the connection between astrology and the divination (*sikidy*) introduced by the Arabs several centuries ago.

A full account of the *Fandràna* or "Bathing," as the New Year's festival is called, cannot be given here, as a complete description would form a separate article of some length. It must suffice to say that although some of the ancient customs have fallen and are still falling into disuse, most of them are still kept up. The most prominent of these are the following:—(1) The lighting of little bundles of dried grass at dusk on the evenings of the 20th and the 21st of November, the latter, the eve of the 22nd, being considered as the commencement of the New Year's Day itself, for the Malagasy, like other Orientals, reckon "the evening and the morning" as the proper order of the day. These fires, possibly a relic of the old fire-worship, are called *harèndrina*, and form one of the most pleasing features of the festival in the gathering darkness of the evening. (2) The ceremonial Royal Bathing at the great Palace, when all the principal people of the kingdom are present, as well as representative foreigners, is perhaps the most prominent of all the ceremonies, giving, as it does, the name to the whole festival. This is followed by a ceremonial bathing, or at least sprinkling of water, by all households. (3) On the following day comes the killing of oxen, doubtless the most important of all *Fandràna* observances in the estimation of the people generally, at any rate of the poorer classes, who then

get, for once a year at least, a plentiful supply of beef. Presents of the newly-killed meat are sent about in all directions to relatives and friends, and feasting and merrymaking prevail for several days among all classes. (4) For some time previous to the actual festival, it is customary for the Malagasy to visit their elders and superiors in rank, bringing presents of money, fowls, fruit, etc., using certain complimentary formulæ and expressions of good wishes.

Such are the principal customs still kept up at the Malagasy New Year. During the few days previous to the festival it is often very unpleasant, and sometimes really dangerous, to travel along the main roads leading to the Capital (as well as in the city itself), from the number of oxen being driven along them. Many of these, having been fattened for some months past, are very fine animals and full of spirit and courage, and if irritated or frightened, they are not pleasant creatures to meet, especially in a narrow road with high walls on either hand. Occasionally one meets with some specially fine ox, quite a prize beast, led along in a kind of procession, a man carrying a long pole with a flag or other ornament to point out its position in a crowded market. One also sees numbers of people carrying loads of firewood, for this is one of the indispensable presents which slaves must bring to their masters at this time, the extra amount of cooking and feasting requiring an extra supply of fuel.

The abundant rains which usually fall in November soon make the hills and downs, which have got so brown and dry during the cold season, to become green again. Especially does the fresh grass brighten those portions of the hill-sides where the withered grass and fern had been burnt two or three months before; and although wild flowers are certainly not so plentiful here in Madagascar as they are in European countries, there are several kinds which now make their appearance and give some beauty to the scene. Among these are the *vônénina*,* with large pink flowers; the *avòko†*, bright crimson; the *nifinakànga,‡* deep blue; several small vetch-like plants with yellow flowers; many others with minute yellow compound flowers, and some few other kinds.

Besides flowers growing on the ground, there are many shrubs and small trees now in blossom, although some are by no means confined in floral display to the warm and rainy season. Along the hedges in one or two localities is a small bush, with clusters of purple leguminous flowers, called *samàmo*;§ branches of these shrubs are sometimes placed in a pool or stream, so as to stupify, and thus easily obtain, any fish present in the water. Very conspicuous are the bright yellow flowers of the *lainakòho||* and the *tsiafakòmbi,*** and the orange yellow spikes of the *seva.††* More showy and handsome still perhaps are the abundant large yellow flowers of the prickly-pear, which is so largely used for hedges and for the defences of the old towns and villages. A species of *Hibiscus‡‡* is not uncommon, with yellow flowers, which have deep red in the centre; yellow seems indeed the most common colour in the flora of Imerina. At this time of the year also three or four species of aloe come into flower. The larger of these, called *vàhona§§* by.

* *Vinca rosca*, L. † *Vigna angivensis*, Baker. ‡ *Commelyna madagascariensis*, C.B. Clarke. § *Mundulea suberosa*, Benth. || *Cassia lavigata*, Willd. ** *Casalpinia sepiaria*, Roxb. †† *Buddleia madagascariensis*, Lam. ‡‡ *Hibiscus diversifolius*, Jacq. §§ *Aloe macroclada*, Baker.

the Malagasy, is much used for planting as a hedge, from its fleshy leaves being armed with sharp prickles; its tall flower-spike shoots up very rapidly to a height of 4 or 6 feet. Another and smaller one, called *sahóndra*,* has its flowers branching at the top of the stalk something like a candelabra. The numerous flowers attract, as they expand, swarms of bees. Another plant, like an aloe in appearance, called *laritrat*† by the natives, has long leaves, with a sharp spine at the ends only; and its flower-stalk shoots up like a small mast to a height of 20 feet, with widely-spreading branchlets and an immense number of light-coloured flowers. Strong fibre used as thread is obtained from the leaves, the name of the plant being indeed that used for 'thread'. The tall flower-stalks of these aloes and agaves form quite a noticeable feature in the Imerina landscape in the early summer. In the orchards, soon after the mango has finished flowering, we may see the curious whitish flowers of the rose-apple,‡ a sort of ball of long stamens, showing conspicuously among the foliage.

Towards the beginning of December the earlier crop of rice comes into ear; and should the rains fall as usual during November, the remaining portions of the great rice-plain will be all planted out with the later crop, the whole of the level and its branching valleys presenting an unbroken expanse of green. Of this, the early rice shows distinctly as a darker shade of colour, although it will soon begin to turn yellow, as the grain ripens under the steady heat and the plentiful rainfall. Perhaps this is the time when Betsimitatatra is seen in its most attractive and beautiful aspect, for every part of it is covered with rice in some stage or other of growth and cultivation.

Since the reception of Christianity by the people of the central provinces of Madagascar, Christmas Day has become a very generally observed festival. As far as can be ascertained, the first Protestant missionaries (1820-1836) do not appear to have enjoined its observance upon their converts; it seems to have become customary to keep it as a festival at some time during the suppression of open Christian worship, probably during the latter years of Rānavalona I., when severe measures against the "praying people" became less common. However this may be, on the reestablishment of the L.M.S. Mission in 1862, the observance of Christmas became very general with the Christians, and it has kept its hold upon them ever since. Every congregation meets in the morning of the day, either in its own church or, more frequently, in the case of the country people, in large united gatherings of half a dozen to a dozen neighbouring congregations in the open air. Looking round on the country from any good position in the Capital during the forenoon of Christmas Day and following days, one may see at many miles' distance, on various elevated points, a great mass of white, showing where one of these large assemblies is gathered together for worship. To such services people who are seldom seen at church on other occasions make a point of coming; although one can hardly believe that their motives for attendance even then are of a very high order. It is a great day for showing off the best dresses the people

* *Aloe capitata*, Baker. † *Agave Ixtli*, Karw. ‡ *Eugenia malaccensis*, L.

possess, or can borrow or hire for the occasion; the men often look very uncomfortable and awkward in suits of European cloth clothing, instead of their far more becoming and graceful native *lamba*, over white shirt and trousers. And the women, although they wisely retain the *lamba*, often have these of brightly coloured silk, and they also consider it a point of good breeding to sport the smartest of shoes and boots they can procure, although they seldom cramp their feet in such uncomfortable contrivances on other occasions. Jewellery, coral beads, and other ornaments are brought out, their hair is elaborately plaited, handsome embroidered dresses are worn, smart parasols and sun-shades are carried, and every one tries to get something extra to show himself, and especially herself, to the best advantage.

Great pains and trouble are often taken to get up special hymns, or at least musical compositions with some scripture or religious allusions in them, for the Christmas services; these are often elaborate and wonderful performances, and sometimes the teacher is paid a considerable sum for his trouble in training his choir. Several sermons or addresses are delivered at these outdoor gatherings, and the services of popular and eloquent preachers are often secured, so as to give greater interest to the occasion.

About Christmas-time also many congregations have a feast together, generally in some mango orchard, for the sake of the shade. Here the people are arranged in rows on either side of primitive table-cloths consisting of fresh banana leaves. Great piles of boiled rice are brought in huge wooden platters, generally the *sahafa* or rice-winnowing dish; while the *laoka* or accompaniments, consisting of stewed beef or geese or fowls, with gravy and green vegetables, is brought in any and every kind of crockery that can be borrowed for the feast. The repast is concluded by a dessert of sliced pine-apple, peaches, and bananas, all of which fruits are cheap and plentiful; and it is a pleasant sight to see the people come together and enjoy themselves in this very innocent fashion.

To any one coming for the first time into a tropical country from England, the comparative uniformity in the length of the days and nights throughout the year seems very strange. In Imerina there is only about two hours' difference in the length of the longest day, about Christmas, and the shortest day, early in July. It is dark at about 7 o'clock on the first of January, and at about 6 o'clock on the first of July. Thus we have no long evenings, which are such a delight in the summer months in England; but, on the other hand, we escape the long nights and the short gloomy days of the English winter. We lose also the long twilights of the temperate zone, although I have never seen the almost instantaneous darkness one sometimes reads about in books as following the sunset. There is a twilight of from 15 to 20 minutes' duration in this part of Madagascar. While therefore we miss the much greater variety of the seasons in England, we have many compensations, especially in the much larger proportion of bright sunny days, the brilliant skies, and the pure clear atmosphere of our Imerina climate. Very seldom have we a wet morning in any part of the year; and the heat is not more oppressive than it often is in hot summers in England.

I remember also how the absence of any evening meetings, or services, or lectures, etc., struck me at my first coming to Madagascar. There is of course nothing like street lighting in the Capital or in any other town here, and the state of the roads, as already noticed, is not favourable for an evening walk, while during the rainy season there is a probability of a thunderstorm on two out of every three nights; so the Malagasy have no evening meetings or religious services, nor do they go about at night, at least respectable and well-behaved people do not; as soon therefore as it is dark, our work with them personally is at an end for the day. To those who come from the active and busy religious work of most Christian people in England, with the evening services, classes, committees, lectures, entertainments, etc., etc., the change to the social and religious life of Madagascar seems very great.

It may be interesting to notice at this point the numerous words used by the Malagasy to indicate the different times of the day, from morning to evening. Clocks and watches are comparatively a recent introduction into Madagascar, nor do the people ever seem to have contrived any kind of sun-dial, although, as will be seen, they did use something else as a kind of substitute for such a timekeeper. It should be remembered that the hours given (counting in European fashion) as equivalents for these native divisions of the night and the day are only approximations, and must be taken as the *mean* of the year, or, in other words, at about the time of equal day and night, towards the end of March or of September. They are as follows—

{ Mamàton' àlina, or Misàsaka àlina, Manéno sàhona, Manéno akòho, Maraina àlina kba, Manéno goaika, { Mànga vodilànitra, Mangànan' atsinànana, { Mangiran-dràtsy, Ahitàn-tsàtr' òmby, Mazàva ràtsy Mifàha òlo-mazòto, Maraina kda, { Vaky mäsòandro, Vaky àndro, { Piakàndro, Antoàndro bé nànahàry, Efa bàna ny àndro, Mihintsana àndo, Mivàka òmby, Maim-bàhon-dràvina, Afa-drànom-panàla, Manàra vava ny àndro, Misàndratra andro, Mitatao hàratra, Mitatao vovànana,	Centre of night, or Halving of night, Frog-croaking, Cock-crowing, Morning also night, Crow croaking, Bright horizon, Reddish east, Glimmer of day, Colours of cattle can be seen, Dusk, Diligent people awake, Early morning, Sunrise, Daybreak, " " Broad daylight, " " Dew-falls, Cattle go out (to pasture), Leaves are dry (from dew), Hoar-frost disappears, The day chills the mouth, Advance of the day, Over (at a right angle with) the purlin, Over the ridge of the roof,	} } ," ," ," ," } ," } ,"
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* These only refer to the two or three winter months.

<i>Mandray tokônana ny andro,</i>	Day taking hold of the threshold,	12' 30 p.m.
{ <i>Mitsidika andro,</i>	Peeping-in of the day,	{
{ <i>Latsaka iray dia ny andro,</i>	Day less one step (=hour?),	{ 1' 0 "
<i>Solafak' andro,</i>	Slipping of the day,	1. 3 "
{ <i>Tafalatsaka ny andro,</i>	Decline of the day=	{ to
{ <i>Mihilana ny andro,</i>	afternoon,	{ 2' 0 "
<i>Am-pitotsam-bary,</i>	At the rice-pounding place,	" " "
{ <i>Mby amin' ny andry ny andro,</i>	At the house-post,	{ " " "
{ <i>Am-pamatôran-janak' omby,</i>	At the place of tying the calf,	{ 3' 0 "
<i>Mby am-pisoko ny andro,</i>	At the sheep or poultry pen,	" 4' 0 "
<i>Mody omby téra-bao,</i>	The cow newly calved comes home,	" 4' 30 "
<i>Tafapaka ny andro,</i>	Sun touching (i.e. the eastern wall),	" 5' 0 "
<i>Mody omby,</i>	Cattle come home,	" 5' 30 "
<i>Ména mäsöandro,</i>	Sunset flush,	" 5' 45 "
<i>Mäty masoandro,</i>	Sunset (lit. 'Sun dead'),	" 6' 0 "
<i>Miditra akoho,</i>	Fowls come in,	" 6' 15 "
<i>Somàmbeisámby,</i>	Dusk, twilight,	" 6' 30 "
<i>Maizim-bava-viläny,</i>	Edge of rice-cooking pan obscure,	" 6' 45 "
<i>Manôkom-bary olona,</i>	People begin to cook rice,	" 7' 0 "
<i>Hômam-bary olona,</i>	People eat rice,	" 8' 0 "
<i>Täpi-mihinana,</i>	Finished eating,	" 8' 30 "
<i>Mändry olona,</i>	People go to sleep,	" 9' 0 "
<i>Täpi-mandry olona,</i>	Every one in bed,	" 9' 30 "
<i>Mipäda-tafandro,</i>	Gun-fire,	" 10' 0 "
<i>Mamatôn' äläna,</i>	Midnight,	" 12' 0 "

This list is, I think, a very interesting one and shows the primitive pastoral and agricultural habits of the Hova Malagasy before they were influenced by European civilization. Previous to their knowledge of clocks and watches (which are still unknown to the majority of people away from the Capital), the native houses thus served as a rude kind of dial. As, until recent times, these were always built with their length running north and south, and with the single door and window facing the west, the sunlight coming in after mid-day at the open door gave, by its gradual progress along the floor, a fairly accurate measure of time to people amongst whom time was not of very much account. In the forenoon, the position of the sun, nearly square with the eastern purlin of the roof, marked about 9 o'clock; and as noon approached, its vertical position, about the ridge-pole, or at least its reaching the meridian, clearly showed 12 o'clock. Then, as the sunlight gradually passed westward and began to peer in at the door, at about 1 o'clock, it announced "the peeping-in of the day" (*mitsidika andro*); and then, as successive points on the floor were reached by the advancing rays, several of the hours of the afternoon were sufficiently clearly marked off:—"the place of rice-pounding" (*am-pitoloam-bary*), as the light fell on the rice-mortar, further into the house; "the calf-fastening place" (*am-pamatôran-janak' omby*), as the rays reached one of the three central posts supporting the ridge, and where the calf was fastened for the night; and then, "touching" (*tafapaka*), when the declining sunshine reached the eastern wall, at about half past 4 in the afternoon. Other words and notes of time, it will be seen, are derived from various natural phenomena.

There is a phrase, *jinja àndry*, meaning "house-post notching," to denote notches or marks cut in the southern ridge-post to mark the gradual advance of the sun's rays, and from them the hours of the afternoon. Some other words for the divisions of time used by the Malagasy may be here noted. Thus, "a rice-cooking" (*indray màhamàsa-bàry*) is frequently used to denote about half an hour; while "the frying of a locust" (*indray miòno valàla*) is a phrase employed to describe a moment.

Many words exist in the Malagasy language to denote different appearances of Nature which are somewhat poetical and seem to show some imaginative power. Thus the light fleecy clouds in the upper regions of the atmosphere are called "sky gossamer" (*faròra-dànitra*); the sun is the "day's-eye" (*màsoàndro*); the galaxy is the "dividing of the year" (*éfi-laona*); the rainbow is "God's large knife" (*àntsibén' Andriamànitra*); and a waterspout is the "tail of the sky" (*ràmbon-dànitra*).

January is usually the wettest month in the year in Imerina; and in some years there occurs what the Hova call the *hafitàna* or "seven days," that is seven days of almost continuous rain, although it more often lasts only three or four days. Such a time is not only a most uncomfortable one for all who have to go about, especially for the Malagasy, with their thin cotton clothing; but it is also most disastrous for the houses, compounds, and boundary walls. The continuous rain soaks into these and brings them down in every direction. From the steep situation of the Capital, almost every house compound is built up on one side with a retaining-wall, and on the other is cut away so as to form a level space. These walls or "batteries," as they are termed, are often badly constructed, and of very insufficient strength and thickness; the constant moisture soaks in, and down come hundreds of stones and tons of earth, blocking up the narrow paths and making locomotion more difficult than ever. The enclosing walls of compounds and gardens, made of several layers of the hard red soil, are also apt to be brought down in ruin at such times, although it is wonderful to see for how many years such structures will endure the storms and heavy rains of successive seasons.

The prolonged moisture combined with the heat of this time of the year naturally makes everything grow luxuriantly. The hill-sides, which get so brown and dry by the end of October, again become green and pleasant to the eye. Our gardens are gay with flowers; and in many places the open downs display a considerable amount of floral beauty. The following description of the wild flowers seen on a journey from Vakinankaratra to Imerina a few years ago at this season, may be quoted here to show that these are more numerous than is often supposed:—

"It is commonly remarked by Europeans that the wild flowers of Madagascar are far from being as numerous or as beautiful as those to be met with in most countries in Europe, or indeed in the temperate regions generally. This is probably correct as a general statement, but in certain months, and in some parts of the island, wild flowers may certainly be seen in very great profusion and in considerable variety. I have never seen elsewhere so beautiful a display of wild flowers as that which met our view when travelling from Antsirabé in Vakinankaratra to Antananarivo in the middle of December, 1887. Leaving Antsirabé

and proceeding for several miles towards the north-east, the level country up to the foot of the long ridge running north and south, which is ascended about four hours after leaving Antsirabe, was gay with flowers, which literally covered the *tanety* or level downs, and in many places gave a distinct and bright colour to the surface of the ground. Among these the most prominent was a pale pink flower on stems from a foot to eighteen inches high (called by the people *kotosay*),* and also the lovely deep-blue flower called *nifinakanga* (lit. 'guinea-fowl's tooth,' see p. 219), which latter covered the paths (recently cleared and widened), and also occurred very abundantly among the grass and the other flowers.

"In many places, especially near villages, whether deserted or still inhabited, a plant with small pale-blue flowers,† almost exactly like our English 'forget-me-not,' grew in dense masses, but on stems a foot or two feet high, showing a blue tinted surface even at a considerable distance. The *vonénina* (see p. 219), with a pale-pink flower, was very frequent, as well as several species of bright yellow flowers; one of these was a species of *Compositæ*, with a head of minute florets looking like a small yellow brush; others were star-shaped; the whole forming in many places a brilliant mass of gold. Three or four species of white-flowered plants, one of which was a *clematis*,‡ were very frequent; and here a few late examples of terrestrial orchids were seen. A month or six weeks previously these were the most abundant flowers met with, at least on the higher land to the north-east of the plain I have been speaking of, and their clusters of waxy-white flowers were very conspicuous. Certain species of these, of rich crimson and also of purple, were even more beautiful; and a few of these still remained among the later flowers in the middle of December.

"We reckoned that there were from twenty to thirty different species of wild flowers then in bloom on these downs of Vakinankaratra, gladdening our eyes by their varied beauty and abundance as we travelled northwards on that glorious morning. As we got to the higher ground, however, I noticed that the blue *nifinakanga* became very scarce. The pale-pink *kotosay* was also much less abundant on the heights, but the white orchids were still in flower in many places. Seven weeks previously these upper *tanety* had been also gay with great masses of a brilliant crimson flower, a leguminous plant, probably an *Indigofera*, which grew in clusters of many scores of spikes growing close together. But in December only here and there was there a flower left, and hardly a seed-pod, the great majority having been scattered by the winds. Our ride that day certainly made us obliged to modify the sweeping statements frequently expressed about the poverty of Madagascar in wild flowers. There was abundance and variety enough on that journey to delight the heart of a botanist, or indeed of any one having eyes to see the beauty of God's handiwork."

Not only do flowers and verdure delight our eyes at this time of the year but this is the season when the greatest variety of fruit comes in. Bananas, pine-apples, and two or three other fruits may be had all the year round, but in the rainy season we also get grapes, peaches, mangoes,

* *Sopubia triphylla*, Baker, † Various species of *Cynoglossum*. ‡ *Clematis Bojeri*, Hook.

plums, quinces, and oranges, and latterly apples are also becoming plentiful. All these latter are of foreign, and some of very recent, introduction; but the peach and the mango are well-established residents, and some varieties of banana, as well as the common guava and the Chinese guava, have also been brought from other countries.

AUTUMN: MARCH AND APRIL.—It will be understood from what has been previously stated as to the divisions of the seasons in the Imerina province, that, as with the seasons in England, there is some variety in different years in the times when they commence and finish. Generally, both crops of rice—the earlier and the later—are all cut by the end of April, although in the northern parts of the province it is usually five or six weeks after that date. But if the rains are late and should happen to be scanty in February and March, as was the case this year (1894), harvest work is still going on at the end of May. In fact, owing to there being these two crops of rice, with no very exactly marked division between the two, autumn, in the sense of rice-harvest, is going on for about four months, and sometimes longer, as just mentioned, and extends over the later months of summer as well as the two months of autumn or *Fàraràno* (March and April). In January those portions of the great rice-plain which lie north-west of the Capital, as well as many of the lesser plains and valleys, become golden yellow in hue, very much indeed like the colour of an English wheat-field in harvest-time; and after a few days, patches of water-covered field may be noticed in different places, showing where the crop has been cut, and the few inches of water in which it was growing show conspicuously in the prospect. As the weeks advance, this water-covered area extends over larger portions of the rice plain, until the whole of the early crop has been gathered in, so that in many directions there appear to be extensive sheets of water. I well remember, when once at Ambòhimanàrina, a large village to the north-west of Antananarivo, how strange it appeared to see people setting out to cross what seemed a considerable lake. But of course there was no danger, as the water was only a few inches deep.

As there are channels to conduct water to every rice-field, small canoes are largely used to bring the rice, both before and after it has been threshed, to the margin of the higher grounds and nearer to the roads. At the village just mentioned, which is like a large island surrounded by a sea of rice-plain, there is one point where a number of these channels meet and form quite a port; and a very animated scene it presents at harvest-time, as canoe after canoe, piled up with heaps of rice in the husk, or with sheaves of it still unthreshed, comes up to the landing-place to discharge its cargo.

In a very few weeks' time the watery covering of the plain is hidden by another green crop, but not of so bright and vivid a tint as the fresh-planted and growing rice. This is the *kàlikòly* or after-crop, which sprouts from the roots of the old plants. This is much shorter in stalk and smaller in ear than the first crop, and is often worth very little; but if the rains are late, so that there is plenty of moisture, it sometimes yields a fair quantity, but it is said to be rather bitter in taste.

In cutting the rice the Malagasy use a straight-bladed knife; and as the work proceeds, the stalks are laid in long curving narrow lines along the

field, the heads of one sheaf being covered over by the cut ends of the stalks of the next sheaf. This is done to prevent the ears drying too quickly and the grain falling out before it reaches the threshing-floor. This last-named accessory to rice-culture is simply a square or circle of the hard red earth, kept clear from grass and weeds and plastered with mud, and generally on the sloping side of a hill or rising-ground close to the rice-field. Here the sheaves are piled round the threshing-floor like a low breastwork. No flail is used, but handfuls of rice are beaten on an upright stone fixed in the ground, until all the grain is separated from the straw. The unhusked rice is then carried in baskets to the owner's compound, and is usually stored in large round holes with a small circular opening dug in the hard red soil. These are lined with straw, and the mouth is covered with a flat stone, which is again covered over with earth; and in these receptacles it is generally kept dry and uninjured for a considerable time. In most years the end of April and the beginning of May are very busy times with the Malagasy; almost all other work must give way to the getting in of the harvest; the fields are everywhere dotted over with people reaping; almost all slaves, as well as the poorer people we meet along the roads, carrying a considerable load of freshly-cut grain on their heads, or a basket filled with *akòtry* or unhusked rice, and large quantities are spilt all along the roads and paths. Hence some of the most frequented thoroughfares, like the chief embankment leading out from the city westwards, swarm with rats and mice, which must pick up a very good living at this time of the year. Other animals also take toll from the harvest, especially the *Fôdy* or Madagascar cardinal-bird, which may be seen sometimes in large flocks, the bright scarlet plumage of the cock-bird making him a very conspicuous feature of the avifauna during the warmer months. These birds sometimes do considerable damage to the rice-crop. Large quantities of rice-stalks are now to be seen in all directions spread out to dry in the sun, and they are also placed for the same purpose on the top of the clay boundary walls of the compounds.

Of late years it has become rather common for the Christian congregations to have a Harvest Thanksgiving service in their churches. The church is often elaborately decorated with rice and fruits of all descriptions, sometimes in fact to an absurd extent, so that the building looks like a greengrocer's store, as indeed may be occasionally seen even in churches in England. A much more commendable feature of these thanksgiving services is the bringing of offerings of rice and various kinds of produce for the support of the evangelists and school teachers.

As the colder weather advances, the mornings are often foggy, at least a thick white mist covers the plains and valleys soon after the sun rises and remains for an hour or two until his increasing power disperses it. Seen from the higher grounds and from the most elevated parts of the Capital, this mist often presents a very beautiful appearance: a billowy white sea of vapour is brilliantly lit up by the sunlight, and out of this sea the hill-tops rise up like islands. But these misty mornings also reveal many things which cannot be seen, or can only be seen by very close observation, in clear sunshine, especially the webs of various species of spider. There they are all the time, but we are not aware of their

presence except on a misty autumn or winter morning, when every delicate thread and filmy net is marked out by minute drops of moisture which reveal all their wonderful beauty of structure. Many kinds of bush are seen to be almost covered by geometrical webs: one species seems to choose the extremities of the branches of the *sóngosóngo* (*Euphorbia splendens*, Bojer), but the most common is a web averaging five or six inches in diameter which is spread horizontally on tufts of grass, and may be seen by thousands, half a dozen or so in a square yard. This web has a funnel-shaped hole near the centre leading to a little shaft in the grass or the ground. Near this, the maker and tenant of the structure—a little greyish-brown spider about half an inch long—may often be found, if carefully searched for. As the sun gains power, these numerous webs become almost invisible, but before the moisture is all dried from them, they present a beautiful appearance in the sunshine, for they are exactly like the most delicate gauze, studded with numberless small diamonds, flashing with all the prismatic colours as we pass by and catch the light at varying angles.

The aspect of vegetation, except in the rice-fields, can hardly be said to change much during the autumn months. A plant with pale yellow flowers (*Grangea maderaspatana*, Poir.) may be noticed by thousands in marshy grounds, giving quite a mass of colour in many places. A significant name given to autumn is *Ménàhitra*, i.e. "the grass is red," that is, turning brown.

WINTER: MAY, JUNE, JULY, AND AUGUST.—As already mentioned in the introductory sentences of this paper, winter in Central Madagascar is very different from winter in England. We have no snow, nor is there any native word for it, for even the highest peaks of Ankaratra are too low for snow to fall on them; we never see ice, (although adventurous foreigners have once or twice seen a thin film of it on pools on the highest hill-sides); hoar-frost, however, is not uncommon, and occasionally the leaves of some species of vegetables, as well as those of the banana, turn black with the keen night air. And since there is no rain during our Imerina winter, the paths are dry, and it is the best time for making long journeys, especially as there is little to be feared from fever when going about at this season of the year. Winter is therefore a pleasant time; the skies are generally clear, the air is fresh and invigorating, and to the cool and bracing temperature of the winter months is doubtless largely due the health and strength which many Europeans enjoy for years together in the central provinces of Madagascar.

The long period without rain at this season naturally dries up the grass, and the hills and downs become parched and brown. *Maintàny*, i.e. "the earth is dry," is one of the native names for this season, and it is very appropriate to the condition of things in general.* The rice-fields lie fallow, affording a scanty supply of grass for the cattle; and many short cuts can be made across them in various directions, for the beaten track over embankments, great and small, may be safely left for the dry and level plain.

In travelling about Imerina, and indeed in the southern central provinces as well, one cannot help noticing the evidences of ancient

* Another curious native name for the end of the dry season is "Màharàra vavy àntitra," i.e. "making the old women spit"!

towns and villages on the summits of a large number of the high hills. These are not picturesque ruins, or remains of buildings, but are the deep fosses cut in the hard red soil, often three or four, one within the other, by which these old villages were defended. These show very conspicuously from a great distance, and are from ten to twenty feet deep; and as they are often of considerable extent they must have required an immense amount of labour to excavate. These elaborate fortifications are memorials of the "feudal period" in Central Madagascar, when almost every village had its petty chief or *mpanjidka*, and when guns and gunpowder were still unknown. These old places are now mostly abandoned for more convenient positions in the plains or on the low rising-grounds; and the fosses or *hady* are often capital hunting-grounds for ferns and other wild plants.*

Perhaps more noticeable even than the old towns are the old tombs, as well as more modern ones, which meet one's eye in the neighbourhood of every village. The Hova tombs are mostly constructed of rough stonework, undressed and laid without mortar; they are square in shape, from ten to twenty feet or more each way, and generally of two or three stages of three to four feet high, diminishing in size from the lowest. This superstructure surrounds and surmounts a chamber formed of massive slabs of bluish-grey granitic rock, partly sunk in the ground, and partly above it. In this chamber are stone shelves, on which the corpses, wrapped in a number of silk cloths or *lamba*, are laid. The tombs of wealthy people, as well as those of high rank, are often costly structures of dressed stonework, with columns, cornice, and elaborate carving, and are sometimes surmounted with an open arcade, and with lofty stone shafts to carry lightning conductors. Within the last few years some large tombs have been made of burnt brick (externally), although no change is made in the ancient style of interior construction, with single stones for walls, roof, door, and shelves. Near some villages are a large number of these great family tombs; and at one place, on the high road from the present to the old Capital, a long row of such tombs, from thirty to forty in all, may be seen. In many places a shapeless heap of stones, often overshadowed by a *Fàno* tree (*Piptadenia chrysostachys*, Benth.), resembling an acacia, marks a grave of the Vazimba, the earlier inhabitants of the country.† These are still regarded with superstitious dread and veneration by the people, and offerings of rice, sugarcane, and other food are often placed on them.

The winter months are a favourite time for the native custom of *famadihana*, that is, of wrapping the corpses of their deceased relatives in fresh silk cloths, as well as removing some of them to a new tomb as soon as this is finished. These are quite holiday occasions and times of feasting and, not unfrequently, of much that is evil in the way of drinking and licentiousness. But as Mr. Haile has described all this very fully in a recent number of the ANNUAL,‡ it is unnecessary to make further reference to it here.

Another very prominent feature of the social life of the Hova Malagasy

* For a fuller description of the villages in this province see my paper in the last ANNUAL entitled "An Imerina Village."

† See the first article in this number.

‡ See "'Famadihana,' a Malagasy Burial Custom:" ANNUAL XVI. 1892, pp. 406-416.

is the system of holding large open-air markets all over the central province on the various days of the week. The largest of these is naturally that held in the Capital every Friday (Zomà), at which probably 20,000 people are densely crowded together, and where almost everything that is grown or manufactured in the province can be purchased. But two or three of the other markets held within four or five miles of Antananarivo do not fall far short of the Zomà market in size, especially those at Asabótsy (Saturday) to the north, and at Alàtsinainy (Monday) to the north-east. To a stranger these great markets present a very novel and interesting scene, and a good idea may be obtained as to what can be purchased here by taking a stroll through their crowded alleys and noticing what is offered for sale. Naturally the market is roughly divided into sections, according to the kind of goods sold. In one part are oxen and sheep, many of which are killed in the morning, while the meat is cut up and sold during the day; here are turkeys, geese, ducks, and fowls by the hundred; here are great heaps of rice, both in the husk and either partially cleaned, as "red rice," or perfectly so, as "white rice;" here are piles of grey locusts, heaps of minute red shrimps, and baskets of snails, all used as "relishes" for the rice; here is *mangahazo* or manioc root, both cooked and raw, as well as sweet-potatoes, earth-nuts, arum roots (*saonjo*) and other vegetables. In another quarter are the stalls for cottons and prints, American sheetings and Lancashire calicoes, as well as native-made cloths of hemp, rofia-palm fibre, cotton, and silk; and not far away are basketsful and piles of snowy cocoons of native silk for weaving. Here is the ironmongery section, where good native-made nails, rough hinges, and locks and bolts can be bought; and near them are the sellers of the neat little scales of brass or iron, with their weights for weighing the "cut money" which forms the small change of the Malagasy. There we come to the vendors of the strong and cheap native mats and baskets, made from the tough peel of the *zozoro* papyrus (*Cyperus imerinensis*, Boeckl.) and from various kinds of grass, often with graceful interwoven patterns. Yonder a small forest of upright pieces of wood points out the timber market, where beams and rafters, joists and flooring boards can be purchased, as well as strong bedsteads and doors. Not far distant from this is the place where large bundles of *hérana* sedge (*Cyperus latifolius*, Poir.), arranged in sheets or "leaves," as the Malagasy call them, for roofing, can be bought; and near these again are the globular water-pots or *siny* for fetching and for storing water. But it would occupy too much time and space to enumerate all the articles for sale in an Imerina market. It is greatly to be lamented that native rum is now largely sold at many markets, in bottles, gourds, and in big earthen pots; and it must be added that at the Antananarivo market slaves are also exposed for sale. This is done in a rather quiet corner of the market, as if the people were a little ashamed of it. When, however, we remember how recently such things were done in countries immensely more enlightened than Madagascar, and by peoples who had the Gospel for as many centuries as the Malagasy have had it for decades, we may well be charitable in judging our native friends.

A few words may be here said about the aspect of the heavens in Imerina, especially at evening and night. We are highly favoured in having sunsets of wonderful beauty; the western sky burns with molten

gold, orange, and crimson ; and as the sun nears the horizon, the ruddy landscape to the east is lighted up more and more intensely every moment with glowing colour, the natural hue of the soil being heightened by the horizontal rays ; the distant lines of hill, range after range, are bathed in every shade of purple light, and the long lines of red clay walls glow like vermilion in the setting sunshine. How often have we watched this glorious display of light and colour, and thanked God for this beautiful world !

But the nights, especially near the time of full moon, are also very enjoyable. The moon appears more brilliant and her light more intense than in England ; it is a delight to be out of doors and to walk in the fresh bracing air, and to have the rough paths illuminated for us by the silvery radiance, which gives a picturesque beauty to the most commonplace objects and scenes.

Perhaps the star-lit skies of the evenings of the summer months are the most beautiful of all the year. At this season some of the finest of the northern constellations are seen at the same time as several of the southerly ones. The Great Bear stretches over the northern sky ; higher up is the Northern Crown ; the Pleiades,* and Orion* with his many brilliant neighbours, are overhead ; the Southern Cross, with its conspicuous "pointers" in the Centaur, is high in the southern heavens ; and the Magellan Clouds are clearly seen nearer the horizon ; and all across the firmament is the Galaxy, or, as the Malagasy call it, the *efi-laona*, "the division," or "separation of the year." And then, as the circling year revolves, the great serpentine curve of Scorpio appears, and Sirius, Capella, Canopus, and many another glorious lamp of heaven light up the midnight sky with their flashing radiance. Imerina is certainly a very favourable country for astronomical observation, and good work may be expected from the Observatory established five years ago by the Jesuit Mission.

The month of August, the closing one in this review of the year, is often the coldest month of all, cold that is for a country within the tropics. All through August the keen south-eastern trades generally blow strong, and although in sheltered places the afternoon sun may be quite warm, the mornings and evenings are very cold, and during the night the mercury will often descend to very near the freezing-point. The mornings are frequently misty ; on some days there are constant showers of *ërika* or drizzly rain, alternating with bright sunny days and clear skies ; these latter seem the very perfection of weather, bracing and health-giving. But this cold weather often brings disease to the Malagasy, especially a kind of malarial fever, which sometimes attacks great numbers of them, and also brings affections of the throat and chest, to which many fall victims. At such times their thin cotton clothing seems ill adapted for protection against the climate. This circumstance has often struck me as showing how difficult it is to change the habits of a people ; for centuries past the Hova have lived in this cool

* Curiously enough, the Malagasy appear to have given names only to these two prominent clusters of stars. The Pleiades they call *Kotokëti-miadi-laona*, i.e., "Little boys fighting over the rice mortar ;" while the three stars of Orion's belt they call "*Telo-no-ho-rëfy*," i.e., "Three make a fathom." They have no name for the first-magnitude stars, or for the planets, except for Venus, as a morning star, viz. "*Fisàrikàndro*," i.e., "Leader of the day."

highland region, yet, until very lately, few of them have made any change in their dress, which was well enough adapted for the purely tropical region from which they originally came, but quite unfitted for the keen cool air of the winter months in a country nearly 5000 feet above the level of the sea.

The great rice-plain to the west of the Capital and all the broader valleys still lie fallow, although in various places extensive sheets of water show that irrigation is commencing. Many of the fields are now being dug up, and water is allowed to flow over them to prepare the soil for planting. In the lesser valleys and at the edges of the larger rice-plains the landscape is enlivened by the bright green of the *kétsa* grounds, the smaller rice-fields or nurseries, where, as already described, the rice is sown broadcast before transplanting into the larger fields.

There are not many deciduous trees in Imerina, so the numerous orchards, chiefly of mangoes, look fresh and green throughout the year. Several prominent trees, however, do cast their leaves, notably the *aviavy*,* the Cape-lilac,* and the *Vôanônoka*,† a large tree very like an oak in its branching and general outline. But the Cape-lilac is beginning to put out its bright green buds; the peach-trees are a mass of pink blossom, unrelieved as yet by any leaves, and the *sôngosôngo*‡ in the hedges is just beginning to show its brilliant scarlet or pale yellow bracts. Wild flowers are still scarce, but the lilac flowers of the *sevabê*§ bloom all through the year. The golden-orange panicles of the *seva*|| now come into bloom. Nature is arousing from the inaction of the cold season, and the few trees now flowering give promise of the coming spring and summer.

Towards the end of this month the people begin to burn the dry and withered grass on the hill-sides, as previously described. This time of the year is that during which, as well as in the earlier months of the cold season, the Malagasy are busy with house building and house repairing. Many of their houses are still built of the hard red clay which covers most of the country, although sun-dried brick is rapidly superseding this; and this is the time when both clay and bricks can be made as well as built into houses. There being no heavy rain, there is no risk of the work being injured if finished before the rainy season comes on.

But it is time that I conclude these sketches of Imerina, and of the varied aspects of Nature, as well as of some of the social aspects of the people, which may be observed throughout the year. Much more might be recorded, but what has been now noted down must suffice. My principal object in writing this paper has been to endeavour to give, if possible, to our friends at home some clear notion of that part of the country where we live, and of the climate and conditions surrounding us here, as well as some aspects of the social life of the people amongst whom we work day by day. If I have succeeded in any measure in accomplishing this intention, I shall not have written altogether in vain.

JAMES SIBREE (ED.).

* See pp. 212 and 214. † *Ficus Melleri*, Baker. ‡ See p. 214. § *Solanum auriculatum*, Ait. || *Buddia madagascariensis*, Lam.

CHARACTERISTICS OF THE MALAGASY LANGUAGE.

THE Malagasy language, as spoken in Imèrina, abounding as it does in open syllables and avoiding all harsh combinations of consonants, is soft and musical in sound, and sufficiently full in vocabulary and rich in grammatical forms to make it a fit instrument, not only for ordinary intercourse, but also for the higher uses of instruction and oratory. Any one who listens to the best native speakers, and witnesses their power to sway the minds of their audience, and sees the delight and enthusiasm of the people as they listen to these native orators, skilled as they are in the art of uttering well-chosen and euphonious speech, will never think slightly of the value and force of the language.

The power of the language is best shown in narration and in description of things apprehended by the senses; and for all purposes of persuasion, teaching, public speaking, and preaching, it possesses excellencies of a very high order. The love of the people for proverbs, of which thousands are in common use, has led to the cultivation of a terse antithetic style of speech, which public speakers learn to use with great skill. As specimens of the power of the language, even in a translation, may be adduced some of the stories of the Old Testament and the Book of Proverbs in the Malagasy Bible; these are generally acknowledged to possess both force and beauty.

The natives are justly proud of their language; and those foreigners who gain a sufficient hold of it to master its many delicate distinctions, and to appreciate its force, yield to it an ungrudging admiration. But whilst we admire the language for its many excellencies, and cannot withhold our wonder that such a fulness and variety of grammatical forms should have been developed and preserved through so many generations without the aid of writing, we do not shut our eyes on the other hand to its defects and weaknesses. These consist mainly in a want of general terms and of words suitable for anything requiring scientific precision. In treating of scientific subjects most of the technical terms have to be introduced. But this need not surprise us; our own language has been borrowing in this manner for generations, as the analysis of a few paragraphs of any scientific work will abundantly prove.

One thing should be impressed on the minds of all who wish to gain a mastery of the language and to use it with freedom, viz. that they must not trust simply to what they can learn from books, or they will acquire but a stiff and bookish style of speaking. On the other hand, it is equally certain that if they are contented to pick up the language by ear only, though they may gain facility in speaking, they will lack accuracy and precision. Careful study of the grammar should go hand in hand with free intercourse with the natives.

A beginner should give his main strength during the first year or two to the thorough mastery of the grammar. He should from the outset endeavour, as far as possible, to avoid forming sentences on English models; and especially should he direct his attention to those points in which the Malagasy language differs so much from his own, e.g. in the absence of the logical copula and the consequent difference in the formation of sentences, the common use of the passive, the peculiarities of the relative form, the way in which the agent of an adjunctive verb is expressed, the uses of the particle *no*, delicate distinctions in the use or omission of the article, etc. If these and similar things are firmly grasped at the outset, a good founda-

tion will exist on which to build. On the other hand, the failure to recognise some of these peculiar features of the language may lead one to adopt awkward and erroneous modes of expression of which it may be extremely difficult to free oneself in after years.

For correct pronunciation the learner should rely entirely on the natives, and never be content to learn from a foreigner. No length of time spent in the island seems enough to make us speak just as the natives do; and pronunciation learned in this way is but a copy of a copy. At the same time let us remember that there are among the Malagasy, as among ourselves, both careful and careless speakers; and in the early days of one's study it is of great importance to have the guidance of someone who has a good pronunciation and is generally accurate in his use of the language. Many country people, bearers, and others, are but poor guides; and those addicted to the use of tobacco have often an indistinct and disagreeable pronunciation. The better-class natives are often heard to complain that foreigners are too ready to pick up phrases from their bearers and servants, a practice which, if not checked, leads at times to the use by persons of education and refinement in other matters of phrases analogous to what might be acquired in England by carefully copying the select expressions heard among railway porters, cabmen, etc.

Idiom is no less important than pronunciation, and we should never lose sight of the distinction between grammatical and idiomatic composition. We may write or utter sentences strictly accurate, so far as grammatical analogy can be our guide, and yet be using forms or phrases which no native would employ. Often in Bible Revision work I wrote sentences which seemed accurate and did not set at defiance any law of grammar, but which my native helpers would not allow to pass. It will be found comparatively easy to write or speak grammatically; but nothing but long and free intercourse with the natives, and careful and constant listening to the best speakers, will give one a command of easy and idiomatic speech.

In this paper some general information about the language will be given; but as most of the points to be noticed have been dealt with in the pages of the ANTANANARIVO ANNUAL, I shall content myself with giving only the main facts, adding at the same time references to the papers in the ANNUAL, where fuller details may be found.

There are five principal points on which information may be given:—

I.—What Europeans have done to promote the Study and Use of the Malagasy Language.

Soon after the discovery of Madagascar at the beginning of the sixteenth century (1506) by Dom Francisco de Almeida, the Portuguese Viceroy of India (ANNUAL IV., p. 1, *Reprint*, p. 401), travellers began to write accounts of the island, and some of them collected vocabularies of the language.

The earliest vocabularies of which I have seen any notice are those of Frederick de Houtman (ANNUAL V., pp. 16, 17) and Corneille van Heemskerck. These were both published at Amsterdam in 1603. The former was one of the vocabularies used by Marsden in writing his essay "On the Polynesian or East Insular Languages" (ANNUAL V., p. 105); and the words contained in it were given in the Dutch, Malay, and Malagasy languages. (For a specimen see ANNUAL V., p. 17.)

Six years later (1609) was published a small book in Dutch by Hieronymus Megiserus, giving some account of Madagascar, with a "Dictionary and Dialogues," filling 105 pages.

Another vocabulary used by Marsden bears the name of Cauche, and is dated 1638. It contained "*Colloque entre le Madagascarois et le Francois sur les choses plus necessaires pour se faire entendre et etre entendu d'eux*," filling 18 pages.

In 1658 a Dictionary was published by Flacourt, who was for some years Governor of the French settlement at Fort Dauphin, and whose great work on Madagascar has been a mine from which later writers have freely dug. An account of Flacourt's Dictionary, and of a small catechism also bearing his name will be found in the ANNUAL (V., p. 18).

Next in order comes the very valuable list of more than 500 Malagasy words given as an appendix to *Robert Drury's Journal*. This list should be studied in the edition annotated by the Rev. J. Richardson, whose knowledge of the Betsilèo dialect helped him in many of his identifications (ANNUAL I., pp. 102-111).

In 1773 a French-Malagasy and Malagasy-French vocabulary was published in Mauritius by an author named Challan (ANNUAL XIII., p. 71).

About the years 1815 and 1816 some voluminous works on the language and customs of the people of Madagascar were compiled by Huet de Froberville. I cannot find any proof that these works were ever printed; but the manuscripts themselves, filling 25 folio volumes (numbered *Add.* 1817-1841), are carefully preserved in the Manuscript Room of the British Museum. A short account of these manuscripts is contained in the ANNUAL (XIII., pp. 65-72).

In Dumont D'Urville's account of the Voyage of the *Astrolabe* (Paris, 1833) is contained a very full vocabulary, taken, it seems, in the main from De Froberville. Any one wishing to obtain in a concise and accessible form material for estimating the knowledge of the Malagasy language already possessed by Europeans before the founding of the L.M.S. Mission in Antanànarivo in 1820 could not do better than consult this clearly printed abstract by Dumont D'Urville, comparing it, if possible, with the Vocabularies of Challan and Flacourt, on which so much of it rests. When the information it contains differs from these, we may generally conclude that De Froberville's manuscripts were the source from which the author drew.

A French Roman Catholic Mission was established in the district of Fort Dauphin in the middle of the seventeenth century, and was maintained for about 18 years (1648-1666). In connection with this Mission was published the small catechism mentioned above as bearing Flacourt's name. Short specimens of the style of this book may be found in the article in the ANNUAL already referred to.

When the first missionary of the L.M.S. (the Rev. D. Jones) reached Antanànarivo in 1820, he found no knowledge of letters among the people generally; but there were a few ("not more than six persons") who could write Malagasy in Arabic letters. For some time after the arrival of the missionaries it seemed doubtful whether King Radama I. would decide in favour of the Arabic or of the Roman alphabet. The Roman happily triumphed.

The form in which the language is written to-day is with slight modifications that adopted by the early missionaries of the L.M.S. On this question I would refer to what I have already said in the ANNUAL (XIII., pp. 65-72).

The work of educating and enlightening the Malagasy has proceeded apace, and now from not less than seven printing offices there are flowing forth constant streams of literature in the native language. Thirty octavo pages of Mr. Sibree's *Madagascar Bibliography* (Antanànarivo, 1885) are required simply to calender the titles of the books that had been issued up to the date of its publication; and from that work may be gained a fair idea of what missionaries and others have been doing to lay the foundations of a Malagasy literature.

What has been done in regard to Philology may also be learned from the same work (*Mad. Bib.*, pp. 56, 58). The most important contributions to the study of the grammar are the following:—

(1) A paper on the Malagasy language by the Rev. J. J. Freeman, given as an Appendix to the first volume of Ellis's *History of Madagascar*. This

is the earliest published sketch of the grammar by an English writer, and is still valuable.

(2) A Grammar published in Mauritius in 1845 (but written as early as 1831) by Mr. Edward Baker, formerly Missionary Printer in Antananarivo.

(3) A Grammar published by the Roman Catholic Missionaries, printed in Bourbon in 1855. The real author of this work was Père Joseph Webber, who in this Grammar and in his Dictionaries has shown himself a skilful and accurate workman, and who laid down the lines upon which others have since followed him.

(4) The pamphlet by Van der Tuuk is valuable for its systematic investigation of the grounds on which the Malagasy is recognised as belonging "unquestionably to the stock of languages which have been denominated Malayo-Polynesian."

(5) A grammar in French by Marre de Marin, "founded on the principles of Javanese grammar," is valuable for the illustration it gives of the position maintained in the preceding work.

(6) A very valuable series of "Studies" by the Rev. L. Dahle in the ANNUAL., Nos. VIII., IX., XI.

A list of all published Grammars known to me will be given as an Appendix.

II.—The essential Oneness of the Language.

In Flacourt's History (1661) we have a distinct statement that one language prevailed throughout the island: "C'est une langue tres copieuse, laquelle se parle esgalment par toute l'Isle, où il n'y a qu'un seul langage: mais elle est differente en ses accens selon la diversité des provinces."

The vocabulary of Robert Drury already referred to is also valuable evidence; for though Drury mixed only with the natives of the southern districts of Madagascar, more than fifty per cent. of the words he gave 160 years ago are well known in Imerina at the present day.

The map of Madagascar also illustrates the substantial oneness of the language, and names perfectly familiar to those who know only the Hova dialect may be found in all parts of the country.

Notwithstanding the fundamental harmony existing between the dialects spoken in different parts of the island, and the fact that the great body of the roots, word-forms, and constructions are identical, considerable differences nevertheless do exist; and any one familiar with only one of these dialects would, on moving to another part of the island, for a time at least, find himself much hampered in his attempts to communicate with the people. For a good description of the state of the case, read Mr. Dahle's remarks (ANNUAL VII., p. 18).

Quite apart from the usual causes always at work lessening the resemblances between dialects spoken by isolated tribes, there is one special cause at work in Madagascar which deserves notice, that is the custom of pronouncing certain words *fady*, or of *tabooing* them. For instance, on the death of a Sovereign, supposing his or her name to contain any word in common use, this must henceforth be considered *fady*, and some new word must be coined to take its place. On the death of Queen Rasohérina in 1868 the word *sohérina*, which means chrysalis, was thus tabooed, and *zàna-dàndy* (child of the silkworm) was ordered to be used instead. In this and similar ways scores of common words fall into disuse in certain districts. For some interesting information on this topic, and also on the appropriation of certain words to chiefs and nobles, see the paper of Mr. Sibree in the ANNUAL XI., pp. 301-310.

None of these dialects have been as carefully studied and cultivated as the Hova, and much remains to be done before we can speak with much confidence about their peculiarities and mutual relations. Some slight knowledge of them may be obtained from the following sources:—

- (1) The Sàkalàva. Vocabulary by l'Abbè Dalmond (1842 ; see *Madagascar Bibliography*, p. 12). Also a pamphlet by Mr. Joseph S. Sewell on the Sakalava.
- (2) The Bètsimisaraka. The Vocabulary of l'Abbè Dalmond named above.
- (3) The Bèzànozàno. ANNUAL IV., p. 445 (*Reprint*).
- (4) The Bètsilèo. ANNUAL X., pp. 235-238.
- (5) The Ibàra. *Isan-Kérin-Taona*, 1877, pp. 42, 43 ; ANNUAL V., p. 108.
- (6) The Sihànaka. ANNUAL III., pp. 318, 319 (*Reprint*) ; XIV., p. 219.
- (7) The Tanàla } *South-East Madagascar (Appendix)*, by the Rev.
- (8) The Taimòro } J. Sibree.
- (9) The Taisàka }
- (10) The Northern Tribes. ANNUAL XI., pp. 279-282.

The Malagasy-French Dictionary of Père Webber (1853) also states under most words in what part of the island they are used (thus e=East Coast ; h=Hova ; g=general ; sk=Sakalava).

There are strong reasons for believing that the Hova will become the language of the whole island. From the time of Radàma I. (1810-1828) the Hova have gradually extended their power until they now rule almost the whole of Madagascar ; and wherever the Hova rule extends, the language naturally finds its way. But a yet stronger unifying power is at work as the Christian religion spreads through the land. The same Bible is read, the same hymns are sung, the same school-books are used from St. Augustine's Bay in the south-west to Diego Suarez in the north-east ; and it seems probable that there will never be a demand for a separate translation of the Scriptures into any of the dialects.

III.—The unwritten Literature of Madagascar.

The records written in the Arabic character and preserved among the descendants of the Arab settlers in the province of Mâtitanana are the only ancient literature of which the Malagasy can boast. But although writing was unknown among them, tradition to some extent supplied its place, and what may be called an "unwritten literature" did exist. Part of this consists of fragments of Hova History, containing lists of ancient Sovereigns, going back perhaps about 400 years. These traditions, with much additional matter, have been published by the French Missionaries (*Tantaran' ny Andriana*, 3 vols.). The Malagasy possessed nothing that bears any close resemblance to the myths of the Polynesians. The nearest approach to anything of this kind is found in some of their Folk-Tales. Many of these have been collected in a book by the Rev. L. Dahle, and in a volume published by the [Malagasy] Folk-Lore Society. (See too ANNUAL II., p. 242 ; III., pp. 363-378 ; IV., pp. 446-456, 529 (all these from *Reprint*) ; X., pp. 241, 254 ; XIII., pp. 28-38 ; XIV., pp. 171-181 ; XV., pp. 357-368.)

A very large number of proverbs exist in the language, 3790 of which are collected in a small volume published by Mr. J. Parrett and myself (Antananarivo, 1885). For papers throwing light upon these proverbs see ANNUAL I., pp. 6, 9 ; IV., p. 427 (*Reprint*) ; V., pp. 58-75 ; VIII., pp. 86-99 ; IX., p. 79 ; XII., p. 456. An English work, translating and annotating many of the proverbs, from the pen of the Rev. J. A. Houlder, has been long promised and may, we trust, be published ere long.*

IV.—The Relation of the Malagasy to other Families of Speech.

From the time when Houtman published his vocabulary (1603) in Dutch, Malay, and Malagasy, down to the present day, the resemblance of the Malagasy to the Malayan languages has been repeatedly pointed out. I have already collected in a paper reprinted in the ANNUAL IV., pp. 412-422 (*Reprint*)

* Since the above was written, the MS. has been sent to us, and we are allowed to publish in this number the first instalment of Mr. Houlder's work, see pp. 188-204, *ante*.—EDS.

the substance of what can be said on this topic. The more recent researches of Dr. Codrington (see ANNUAL VI., pp. 23-29; XI., pp. 343-353) have added largely to the available material, and have set in a yet clearer light the conclusions of earlier scholars; and dealing, as they do, with a class of languages not closely allied to the Malay, they are especially valuable as confirming the conclusion that the Malagasy has not been derived from the Malay strictly so called, but "represents an older stage of the common language now so widely spread over the Indian and Pacific Oceans" (ANNUAL IV., p. 419, *Reprint*).

In addition to our consideration of the wide area from which we may gather words and grammatical forms closely allied to the Malagasy, there are other facts that must have weight with us in estimating the time at which the Malagasy branched off from the original stock:—

(1) The absence of Mahommedan traditions in Madagascar.

If the Malagasy had been derived from the Malay in comparatively recent times, some knowledge of the Koran and of the religious ideas of the Malays since their conversion to Mahommedanism would doubtless prevail. Such Arabic influence as has been exercised in Madagascar, of which more will be said in the next section, has been carried by Arab and Swaheli traders and by the colonists in the south-east.

(2) The fewness of the Sanscrit words to be found in the Malagasy.

In its later stages the Malay has a large sprinkling of Sanscrit words. (See Maxwell's *Manual of the Malay Language*, Introduction.) In Malagasy Crawford counts only six Sanscrit words, viz. *feno* (S. *panuh*); *sisa* (S. *sasha*); *tsàra*, to judge (S. *achara*); *avàratra* (S. *atara*); *àlina* (S. *lakṣa*); *hetsy* (S. *kāti*); to which may be added *andriana* (S. *satṛiya*; *s* is often omitted, see Dict. s.v. *ômpa*) and *àmana* (S. *saman*, equality, with); *tivo* in *vòatavo* is, according to Van der Tuuk (p. 19, n.), of Sanscrit origin; and *fénomàmana*, of the full moon, was originally a Sanscrit word (*purnama*).

(3) The richness of the Malagasy in derivative forms.

Dr. Bleek says: "Among all the members of the Oceanic section of the prefix-pronominal languages with which we are acquainted, the Malagasy possesses the greatest number of consonantal sounds, and it appears in general to exhibit very full and original structural features." This would seem to indicate that the Malagasy has for ages pursued an independent line of development, or that it has maintained forms that have since disappeared from kindred languages.

For careful investigation of the Malayan affinities of the language Van der Tuuk's pamphlet remains the most thorough and valuable source of information. Much confirmatory evidence may be found in the notes to Marre de Marin's Grammar and in the various papers written by Mr. Dahle. For Marsden's statement see ANNUAL V., pp. 101-106; and for the opinion of the early missionaries see Ellis's *History of Madagascar*, vol. I., pp. 491-496. In the *New Malagasy-English Dictionary* by the Rev. J. Richardson, more than 300 Malagasy words are shown to have Malayo-Polynesian affinities. These might, I believe, be largely increased; and the most likely source from which examples might be gathered is the very full Malay Dictionary of the Abbé Fayre, published in Vienna. In an hour or two I was able to glean from this a score of words not noticed in our Dictionary.

V.—Foreign Elements found in the Malagasy Language.

The Malagasy, like almost all other languages, bears abundant evidence of contact with foreign influences. The chief languages from which it has borrowed are the following:—

(1) *African*. The best guide to the study of the African words is Mr. Dahle's paper "The Swaheli Element in the New Malagasy-English Dictionary" (ANNUAL IX., pp. 99-115). Of special importance is Mr.

Dahle's remark on the more ancient African elements in the language, which may, he thinks, "prove the original African settlement here in the same way as the Celtic words in English, even without influencing the grammar, prove that the Celts lived in England before the Anglo-Saxons" (ANNUAL IX., p. 114; compare also VII., pp. 23, 24).

(2) *Arabic*. Among the many valuable contributions of the Rev. L. Dahle to the study of the Malagasy language perhaps not one has a wider and more abiding interest than his paper in the ANNUAL entitled "The Influence of the Arabs on the Malagasy Language: as a Test of their Contribution to Malagasy Civilization and Superstition" (II., pp. 203-218, *Reprint*; also p. 524); and to this full and interesting paper the reader is referred. A work is now being published from the pen of M. Gabriel Ferrand, French "Agent Residentiel" at Mānanjāra, that will throw much light on the history and influence of the Arab colony in South-east Madagascar.*

(3) *European Languages*. These are mainly the French and English. From both these languages many words have been introduced through missionary enterprise. The original discoverers of Madagascar do not seem to have left any definite trace of their influence on the language. The only Portuguese word that has so far been pointed out is *ampingaratra* (Port. *espingarda*), an old name for "gun," found in *Kabary* (p. 14), and used by the Sakalava and other tribes.†

French words are extremely common; and as French influence extends, they are likely to be adopted in yet greater abundance. Usually the French article is taken as forming part of the word, and so we have *divay* (= *du vin*) and *latàbatra* (= *la table*). Some of the more common French words in use are the following:—

lodivỳ (*l' eau de vie*)
laposèty (*l' absinthe*)
kafè (*café*)
labièra (*la bière*)
salàdy (*salade*)
lafarina (*la farine*)
lalikèra (*la liqueur*)
vinaingitra (*vinaigre*)
dipaina (*du pain*)
saosisy (*saucisse*)
darazay (*dragée*)
disèly (*du sel*)
lapomady (*la pomade*)
kiraro verinia (*vernis*)

batèra (*tabatière*)
lapoèly (*la poêle*)
lamòdy (*la mode*)
mezirina (*mesure*)
santinina (*échantillon*)
dantèly (*dentelle*)
sonia (*signe*)
kasè (*cachet*)
zariday (*jardin*)
mangazay (*magasin*)
lasòa (*la soie*)
laisòa or lesoa (*le chou*)
salàna (*chaland*)
kiràro mèrinòsy (*merinos*)

The names of many carpenters' tools are French, e.g. *rabòà* (*rabot*), *laikèra* (*l'équerre*), *kompà* (*compas*), *marotò* (*marteau*). An amusing illustration of the adaptation of French words is given in the ANNUAL XVI., p. 501.

English words do not so readily adapt themselves to Malagasy pronunciation as French words. Many of those used have been introduced through the work of missionaries; e.g. *solaitra* (slate), *penisily* (pencil), *penina* (pen), *sekòly* (school), *rèjistra* (register), *Baiboly* (Bible), *Testamenta* (Testament). One English word (*mark*) has become so fully naturalised that it is treated just as a Malagasy root, and so we have *marihina*, *mariho*, *mānamàrika*, *anamarihana*, etc.

On foreign words introduced into the translation of the Bible see *Ny amin' ny Baiboly Voahitsy*, ch. viii.

In the transfer of foreign words into Malagasy we often find the same

* The first part of this work, entitled *Les Musulmans à Madagascar et aux Iles Comores*, was published in Paris in 1891.

† Is *hisa* (hog) from the Portuguese? See ANNUAL V., pp. 93.

influence at work as in other languages, and to the casual observer all traces of foreign origin are obliterated. Just as in English, "Rotten Row" (= *route du roi*) and "beefeater" (= old F. *buffetier*) have successfully disguised their French origin, so have the following Malagasy words managed to put off their foreign dress and to offer themselves to the unwary as pure Malagasy —

Ampongabendanitra, *lit.* the great drum of heaven (Eng. *pomegranate*).
Zahamborozano (Fr. *jambrosade*). This word has no real connection with the Malagasy *zahana*.

Lamboridimbasy (*tambour de Basque*).

Alijinery (Eng. *engineer*).

Alezapo (Eng. *Heads up!*).

Samily (Eng. *assembly*).

Goana (Eng. *go on*).

Several Malagasy words possess exceptional interest, as they are examples of words that have travelled east and west and have taken root all over the world; e.g. *savòny* (soap) is essentially the same word as the Greek *sapon*, the Latin *sapo*, the English *soap*, the French *savon*, the Malay *sabun*, and the Swaheli *sabuni*. So too the word *zebàdy* is really another form of our own *civet*, which may be found in different lands in the forms *zabad*, *zebed*, *civetto*, etc. The rare Malagasy word *ràjo* (e.g. "*tsy mahafoy ny ràjo àho*") is only another form of the familiar word *rice*; in Greek we have it as *oruza*, and in Arabic as *aruzz*.

It is interesting, but at the same time irritating, to notice how, when the Malagasy adopt a foreign word, they often give to it a partial or changed meaning. Thus *lakiraonina* (Fr. *la couronne*) means a decoration or order. For "crown" the Malagasy use *sàtrok' Andriana*, or *sàtroka fito ràntsana*. *Kasé* (Fr. *cachet*) means a warrant or certificate; and for the impression made *fambo-kasé* must be used. *Sékoly* means scholar, and *sosaiety*, money paid by a society. *Mozika* is not a general name for music, but means specially brass instruments. *Gilbby* is used for glass lamp chimneys. *Harir* in Arabic means silk, but *hariry* in Malagasy has come to mean fine white calico or cambric. *Lojika* (logic) means in common parlance talk with which one seeks to entrap his hearers, and *politika* (politics) is a common synonym for cunning and trickery. *Manao komity* seems to run some danger of becoming a term used by the natives for plotting and wire-pulling. *Lasantsy* (turpentine) has a curious history. It represents the first word of the full name *L'essence de térébinthe*, and in itself suggests as little of the nature of the article, as does *ménaka tîlo zôro* (three-cornered oil) suggest cod-liver oil, of which it is the common name, the first imported having come in bottles of this shape. *Dozina* (dozen) has also acquired a strange secondary meaning; and from the fact of articles of one kind being sold in dozens, *miakànjo dozina* is now used of one wearing an entire suit of the same material.

W. E. COUSINS.

APPENDIX:—LIST OF WORKS ON MALAGASY GRAMMAR.

In English.

A Malagasy Grammar. By the Rev. J. Jeffreys, of the London Missionary Society. About 1825. Never printed. No MSS. copies are known to exist.

An Outline of a Grammar of the Madagascar Language as spoken by the Hovas. By E. Baker, formerly Missionary Printer (for the L.M.S.) at Antananarivo. Written in 1831. First edition printed in Mauritius, 1845; second, in London, 1864; pp. 48.

"General Observations on the Malagasy Language. Outline of Grammar and Illustrations." By the Rev. J. J. Freeman, of the London Missionary

Society. Published in Ellis's *History of Madagascar*, vol. I., pp. 491-517, 1838.
A Grammar of the Malagasy Language in the Ankova Dialect. By the Rev. D. Griffiths of the London Missionary Society. Woodbridge; 1854. pp. 244.

"Outlines of a Grammar of the Malagasy Language," by Dr. H. N. Van der Tuuk. Read before the Royal Asiatic Society in 1865. Published by Trübner.
An Introduction to the Language and Literature of Madagascar. By the Rev. Julius Kessler, Curate of St. John's, Deptford: late (I.M.S.) Missionary in Madagascar. London: 1870. Very meagre: the chapter on Grammar contains only pp. 14.

An incomplete work on Malagasy Grammar by Mr. Louis Street, of the Friends' Foreign Mission Association. Only two sheets were printed. The complete work was intended to fill 300 or 400 pp. and to contain a large collection of examples.

A Concise Introduction to the Study of the Malagasy Language as spoken in Imerina. By the Rev. W. E. Cousins, Missionary of the London Missionary Society. Antananarivo, 1873, pp. 80. A second edition of the above is given in the *New Malagasy-English Dictionary*; 1885. [A third edition just published; see p. 252, *post.*]

"The Malagasy Language," by the Rev. W. E. Cousins. *Transactions of the Philological Society*, 1878; pp. 34.

"*A Concise Grammar of the Malagasy Language.*" "Trübner's Series of Simplified Grammars." London, 1883, pp. 60. Taken almost entirely from the *Concise Introduction* by the Rev. W. E. Cousins; 1873.

Malagasy for Beginners: a Series of graduated Lessons and Exercises in Malagasy as spoken by the Hovas. By the Rev. J. Richardson, Head-Master of the L.M.S. Normal School, Antananarivo, 1884; pp. 120.

A valuable series of "Studies in the Malagasy Language" by the Rev. L. Dahle, of the Norwegian Mission, are to be found in the *ANNUAL* from 1870 to 1887.

In French.

In De Froberville's manuscripts (1815, 1816), are found some general notes on the grammatical forms of the Malagasy language (*ANNUAL* XIII., pp. 68-70).

In the *Voyage de Découvertes de l'Astrolabe* by Dumont d'Urville (Paris, 1833) is contained an "Essai de grammaire madekass, avec exercices," pp. 5-48, written by Chapelier.

Grammaire Malgache. Par le Père J. Webber (see Introduction to Père Ailloud's Grammar, p. ii.). Bourbon, 1855; pp. 118.

Grammaire Malgache-Hova. Par le Père Laurent Ailloud, de la Cie. de Jésus. Tananarive, 1872; pp. 383.

Grammaire Malgache fondée sur les principes de la Grammaire Française. Par Marre de Marin, Professeur de langues orientales de la Société asiatique. Paris, 1876; pp. 126.

Grammaire Malgache. Par le R. P. Pierre Causséque, S. J., Missionnaire de Madagascar. Antananarivo, 1886; pp. 198, with Appendix, pp. 47.

In Malagasy.

Gramara Malagasy. By Mr. J. S. Sewell, of the Friends' Foreign Mission Association. Fourth edition. Antananarivo, 1873; pp. 28.

Gramara Malagasy. By the Rev. G. Cousins, of the London Missionary Society. Pt. I. Antananarivo, 1872; pp. 70.

Analysis of Sentences. By the Rev. W. E. Cousins, of the London Missionary Society. Pt. I. Antananarivo, 1871; pp. 41.

(In later editions the above *Grammar* and *Analysis* have been made into one book, with some additions and improvements.)

Gramatik Malagasy hianaran' ny ankizy madinika. Den Norske Mission, 1881.

EARLY NOTICES OF MADAGASCAR FROM THE OLD VOYAGERS, PART V.:

EXTRACTS FROM THEVENOT'S VOYAGES.*

(Continued from No. xvii.)

WITH NOTES BY CAPTAIN S. PASFIELD OLIVER, LATE R.A.

II.—FROM THE MEMOIRS OF THOMAS RHOE, AMBASSADOR FROM THE KING OF ENGLAND TO THE MOGUL, FOR THE EAST INDIA COMPANY, 1660.

AT Molalia (Mohilla, in the Comoro Is.) the Ambassador writes:—
“A merchant-ship from Madagascar, laden with slaves, was at anchor in the same harbour. The pilot spoke Portuguese and told me that on the coast of the Island of S. Laurens there was a quantity of Ambergris and coco-nuts. He had an intimate knowledge of those coasts, and showed me a chart well engraved on parchment; and when he had seen mine, he found a good deal to alter, which I corrected on his information, and particularly the distance that it was from Socotra and from the mainland and certain other islands which my chart placed to the south of Molalia, assuring me that they were not there.” [On charts of prior date, witness that of Teixeira,* 1649, probably that used by the ambassador, two islands, S. Spirito and S. Ansiouac (?) or S. Christopher, are shown, which have no existence, making in all *six* Comoro islands.]

III.—M. Melchisidek Thevenot, in the second volume of his collection of voyages, after the preface, gives an account of the present state of the Indies, recording the places held by the Portuguese, those occupied by the Dutch, and also those where both these nations traded together, enumerating those as well where one nation traded to the exclusion of the other. In this interesting list the only mention made about Madagascar is in a brief paragraph, where it is stated of the Portuguese that: “They sometimes touch at the west coast of Madagascar. It is said that they intend to build a Fort in the island Maurice.”

IV.—It is in the sailing directions for the navigation of the East Indies† that we find more practical details of considerable interest relating to the coasts of Madagascar in the middle of the seventeenth century.

The whole course from Lisbon to the Cape of Good Hope is first

* RELATIONS DE DIVERS VOYAGES CURIEUX, qui n'ont point esté publiées; ou qui ont esté traduites d'HACLVT, de Purchas, et d'autres Voyageurs Anglois, Hollandois, Portugais, Allemands, Espagnols; et de quelques Persans, Arabes, et autres Auteurs Orientaux. Enrichies de Figures de Plantes non décrites, d'Animaux inconnus à l'Europe, & de Cartes Géographiques de Pays dont on n'a point encore donné de Cartes.

SECONDE PARTIE.

A PARIS, chez Jacques Langlois, Imprimeur ordinaire du Roy, au Mont Sainte Genevieve; et en sa boutique à l'entrée de la grande Sale du Palais à la Reyne de Paix. M.DC. LXIV. Avec privilege de sa Majesté.

† ROVTIER POUR LA NAVIGATION DES INDES ORIENTALES, Avec la description des Isles, Barres, entrées de Ports, & Basses ou Bancs, dont la connoissance est necessaire aux Pilotes, par ALEIXO DA MOTTA, Qui a navigé dans ces mers l'espace de trente-cinq ans en qualité de Pilote Major des Caragues de Portugal, traduit d'un Manuscrit Portugais.

given for the months of March or September; and this is chiefly remarkable for the notice we find of a now non-existent island, viz. the *Isle de Trinité*, which the Pilot-major DA MOTTA affirms to have seen for a whole day, and to have marked by observation of the sun, between Ascension and Martin Vaz. It would be out of place to discuss this point here, but it is mentioned as an interesting fact. Capital instructions are given by the Pilot, which occupy eight folio pages, before the Cape is reached. Beyond the Cape, the first course examined is that to Mozambique and Goa, passing between the main land and the island of St Laurens.* Leaving the Cape, about the end of July, the Pilot advises the mariner, after sighting the Cape, to avoid the land, and when he has gone one hundred and fifty leagues and reached the extremity of the Agulhas Bank (*Banc des Aiguilles*) about eighty leagues distance from the shore, to change his course to E.N.E., as far north as thirty-one degrees. Then, on approaching the latitude of the island of St. Laurens, to steer N.E.½E., so that he can obtain a sight of the coast from 24° up to 22°, for all this coast-line is free from danger.... Then follows a list of variations of the compass, in which we find that at this date the needle (*l'aymant*) varied 15° N.W., in sight of S. Laurens, in 25° lat.

From 22° the course should be steered N., as far as the Isle of Jean de Nova, in 16°½ S., of which it is necessary to be careful, especially at night, as the island is small and low and surrounded by banks. It is well to pass 10 leagues to the west of it, as the current draws the vessel towards it.... More directions are given as to the course along the Mozambique Channel, and the dangers of the *Basses de India* are dwelt upon. If you meet in this channel with quantities of seaweed and small branches of interlaced *sargassum* (gulf-weed), which are called "foxtails," because they resemble them, besides much fish-spawn, it is needful to look out for the coast of S. Laurens, as this is a sign that land is not far off, but if little is observed of these signs, it is the middle of the channel.

In the month of August the voyager is recommended to sail outside of the Isle of S. Laurens, via Rodriguez, etc., to Goa.

Extracted by S. PASFIELD OLIVER, CAPT. LATE R.A.

* Voyage du Cap de Bonne-Esperance à Mozambique et à Goa, quand on passe entre la Terre-forme et l'Isle de S. Laurens.

RECENT DISCOVERY OF FOSSIL BONES OF HUGE *DEINOSAURS* IN MADAGASCAR.

THE following extract from a letter which I received a few months ago from Dr. H. Woodward, F.R.S., V.P.G.S., Keeper of the Geological Department of the British Museum, will probably be read with extreme interest by many, as it contains information of such high importance bearing on the geology of this great island, namely, the discovery of several species and even genera of those gigantic extinct monsters, the *Deinosaurs*, some of which, especially those found in Colorado, attained the enormous height of 20 or 30 feet, and a length of 60 or 80 or possibly 100 feet, being, in some instances, in comparison with an elephant what an elephant is to a sheep. Of these huge creatures *Atlantosaurus* is the most gigantic, being in fact the largest of all animals ever discovered. It is therefore of very high geological interest to hear from Dr. Woodward that one of the recently discovered *Deinosaurs* of Madagascar was "as large probably as *Atlantosaurus*." The rocks in which the fossils were found are Jurassic (or possibly Cretaceous), which are by far the most abundant sedimentary rocks in the island, covering large stretches of country in the western half of it. A description, more or less full, of the Deinosaurian bones found in Madagascar may be expected after the fossils have been examined and worked out. A popular and interesting account of the most remarkable of these *Deinosaurs* and other extinct creatures may be found in the book *Extinct Monsters*. The following is the extract :—

R. B. (Ed.)

"Dear Mr. Baron,

"I was very pleased to receive a letter from you, although I have been so long in replying. Your friend Mr. Matthews has sent us a large vertebra (Deinosaurian).....In March, 1894, we received a collection of 20 Deinosaurian vertebræ and 28 parts of limb bones of a huge terrestrial lizard as large probably as *Atlantosaurus* of Marsh; two genera, if not three, are represented, one being like *Ornithopsis* or *Brontosaurus*. These were obtained and sent over by a gentleman named J. T. Last, who was employed by Mr. Henley Grose-Smith to collect Lepidoptera. This gentleman also sent over several huge carapaces of *Testudo Grandidieri* from caves, also an immense number of loose bones of the neck, legs, tail, and several skulls.....Mr. Last also sent us *Megaladapis madagascariensis* and another smaller lemuroid skull, the former from Amboulisatra, and the latter from Nossi-vey.....When Mr. Lydekker returns from Argentine in October, he will describe the Madagascar *Deinosaurs* no doubt, and you shall have the result.

"With kind regards,

"Yours very sincerely,

"HENRY WOODWARD."

THE HUNTING OF WILD OXEN IN MADAGASCAR.

IN travelling over the uninhabited plains in the western part of Madagascar the traveller will often see, by the numerous streams, patches of ground in which a number of large stakes are firmly fixed in the earth, and rings of bare ground at a little distance from each stake. As there is no sign of any settlement, past or present, to be seen near these places, one is at a loss to account for these spots. For want of a better explanation, one can always fall back on the fairies and the rings in which they dance, only one had not thought of them before as tethered to a stake. I confess that these places and the frequency of them in certain parts puzzled me not a little ; however, I soon learned that they were for more practical purposes than the midnight dances of sprites when I came upon a large band of hunters, one of three gangs trying to cut off a herd of wild cattle, and found that they had some twenty-seven of these animals secured to as many stakes in their encampment some miles off. We shared an ox I had just shot with these men, as I had spoiled their hunt for that day by disturbing the cattle before I came up with them, and then I learned something of their mode of hunting, which I will try and describe here.

In the first place, let me say that there is no lack of wild cattle on the plains between the Bongoláva hills ; one may see as many as two or three herds at one time in the early morning, before the day is hot, when the cattle take to the shade in the valleys. They are of different colours : dun, red, and black ; the hump is almost or quite absent, except in a few instances, which may be accounted for by their intermixture with tame oxen, which are left by the Sakaláva on their return from their raids in the interior provinces, and which escape to the wild oxen. This at least was the explanation given me by a very intelligent hunter, and which I think is probably correct. The wild oxen are much sleeker looking than the tame oxen, have smaller legs, and are very swift of foot.

The hunts are got up on the border-land during the dry season, and as many as sixty men are required for a satisfactory hunt. They go out under a recognised captain, taking rice with them, and stay about three weeks, as a rule. They often get a number of young cows and calves and a sprinkling of bulls, but few venture to touch the latter.

As most of the Malagasy on the border-land are heathen, they commence their hunt with supplications to the spirit of a former princess (Rangòrimérina), who is supposed to be the owner of the oxen. In one part of the border-land a particular wood is considered to be the best place to perform this ceremony ; it was pointed out to me, and seemed a circular-shaped bit of dense forest. The weakest member of the hunt is chosen as suppliant ; this is supposed to make the oxen weak and less able to escape. He goes a little way into the wood, and then returns and reports that the spirit is propitious, on condition that there be no quarrelling amongst the men. He also reports that she will send her slaves to drive out the oxen. Sometimes a sacrifice is offered, but that does not seem to be a necessary part of the performance. Then, under the direction of the captain, a camp is arranged, and the band

divides up under leaders, and each division goes off in its allotted direction to surround a herd of cattle or, possibly, more than one herd; but great care is taken not to start the oxen till each party has got to its proper place. As they go along, men are left at what are called "*tahia*," i.e. the track of the oxen, and when the hands are ready, the drive commences. The cattle are very quick to scent the approach of human beings and commence to move off in the opposite direction, but are brought up by the men waiting for them. Then commences a stampede, and the cattle are driven towards some precipitous part, or a swamp, where they come to grief or tire themselves out. This ends in a *mêlée*, when the cattle are caught as they fall and are quickly secured, with their legs tied across; or they are caught in the astonishing way which all who have seen the *Fandroana* festival in Antananarivo will remember, by the head or neck, and thrown down and secured. In this driving, however, a good deal of knowledge of the ways of the cattle is required, for if the herd breaks through the cordon of men, they get away, and the hunt is over. A slight error of judgment may cause this, as sixty or a hundred men spread out can only cover a part of the ground; but an experienced hunter knows at once the way the cattle will probably go, even though there may be no actual track, as I saw for myself. We were trying to stalk some oxen in a valley, and I sent my men round to cut off the oxen and drive them back; an old hunter with me said, as we were getting near the oxen: "That is the way they will leave the valley;" so we sent two or three men to the place to turn them. Sure enough, when the oxen were startled, they did go as indicated by my friend, and the men went too, when they saw them coming, and we lost them.

The sense of smell is very keen in the wild oxen; one may see them lift their heads and scent the air a couple of miles off, if they are to windward; they are also very timid, and one may see whole herds moving in one direction, showing that they have been startled probably by human beings and have frightened the other herds. This is one of the signs of the wilderness and is prepared for by travellers; as one is pretty sure to come across a band of Sakalava afterwards, who are not always friendly disposed. This timidity of the cattle helps the hunters, as the herd follows in the track of the foremost oxen, whether it leads to a gully or a swamp, and this is kept in view by the men. However, it is not every herd than can be taken; if the herd is large, and there are several bulls, they move off safely. I have seen such a herd headed by three old savage looking bulls, the cows and calves together in the middle, and some more bulls bringing up the rear. They show fight if interfered with, as the foremost came straight at us and only turned at the report of the gun. The only thing that can be done by the hunters, who carry no arms except a few spears, to protect their camp in a case like this is to try and frighten the cows and separate the herd.

Each man carries four ropes which, to an inexperienced person, would be a great inconvenience, but they dispose of them very cleverly; one is put round the head, which, they say, is the handiest place; others round the arms, and one or more round the waist. When a man captures an ox, but cannot secure it alone, if he calls to another to assist him, they ordinarily share the spoil or the price of it; but sometimes a ludicrous

scene occurs when a man is battling with an ox which has given him much trouble calls out to another to come and help, offering him one third, and the other stops to bargain for the half and refuses any help till he gets it. Bargaining seems to enter into every phase of the life of the Malagasy. Where the oxen are secured to their stakes by cords round their necks, they are left for a day or two without food if they are very fierce; when hunger restrains them, then they get to know their masters, who give them a little salt, which is said to have a great effect in taming them. The injured oxen afford food for the camp, which is very lively after a successful drive.

Another hunt is soon arranged, and by the time the camp is broken up, the oxen are tame enough to be driven home. I am told that a successful hunter will sometimes get as many as four or five oxen by the time he leaves. These are put with the tame oxen, but on the border-land they sometimes escape and go off to their former companions, so many are sold in the markets.

It is an interesting question whether the wild oxen of Madagascar, are oxen run wild or are of another kind.* If they are only tame oxen escaped from the natives, they have changed a good deal, especially as regards their hump.

Sometimes one sees solitary bulls wandering about; these probably have been beaten and driven off by one of superior strength. I once saw a splendid battle between a red and a black bull alone on the side of a hill; they had raked up a deep hole with their fore feet opposite each other in their angry challenge; but the hole served a purpose when they engaged, as they got their hind legs firmly planted in it, and it seemed impossible for either to drive the other back, until one of them began to push in a circular direction, where less resistance could be offered. This reminded one of the new tactics in a football scrimmage. This one soon drove the other bellowing down the hill, and then joined the cows and calves waiting at a little distance.

E. O. McMAHON.

VARIETIES.

Determination of the Position of Antananarivo.—At the recent meeting of the Academy of Sciences in Paris (*Comptes rendus*, No. 13, vol. cxvii.) M. Alfred Grandidier announced the satisfactory determination by Father Colin of the latitude and longitude of the Ambôhidempona Observatory near Antananarivo, the Capital of Madagascar. The latitude and longitude were given by Rev. Dr. Mullens in 1875 as $18^{\circ} 56' 30''$ S., $46^{\circ} 40'$ E. and by Mr. W. Johnson in 1882 as 19° S. and $47^{\circ} 45'$ E. In 1869 M. Grandidier fixed the position of the French cathedral as $18^{\circ} 55'$ and $47^{\circ} 31' 29''$ by means of a small theodolite not specially accurate. Father Colin fixed the latitude by means of fifteen series of observations of one hundred and fifty-six stars, using a portable transit circle by Rigaud. The observations were made difficult by the incessant tremor of the mercury in the artificial horizon, due probably to the continuous easterly wind, but the determination for latitude may be

* The Malagasy wild oxen are undoubtedly ordinary domestic oxen (i.e. Indian humped oxen) run wild.—EDS.

viewed as accurate, being $18^{\circ} 55' 2'' 10'' - 2^{\circ} 18' S$. Longitude was determined by the same transit circle by the method of luna-culminations, thirty-nine determinations being made with reference to five hundred and sixty-one stars, the mean time-difference from Paris being found as 3 hours 46 secs.,—4 secs.; corresponding to longitude east from Greenwich $47^{\circ} 31' 44'' - 1'$. The time difference between Ambohidempona Observatory and Tamatave was found by telegraphic observation to be 7 min. 35.4 secs.; and as the longitude of this seaport is fixed by numerous chronometer and lunar observations, the result for the Capital is deduced as $47^{\circ} 31' 22'' E.$, only 22' different from the direct determination.—*The Geographical Journal*, Feb. 1894, p. 143.

An Old Malagasy Bible.—"The trustees of the British Museum have just published the first part of that portion of the general catalogue of printed books devoted to the article 'Bible'.... Among the infinite number of Bibles in less civilized languages, especial interest attaches to the Malagasy Bible of 1830-35, printed in the country. In the persecution which shortly supervened, native Christians were accustomed to divide their Bibles into small portions, carried about the person one at a time for the sake of concealment. Complete copies are consequently of extreme rarity; that now in the Museum is said to have been sold in Madagascar for 20 oxen."—*The Times (Weekly Edition)*; Dec. 30, 1892.

A word or two may be added to the above notice of the British Museum's copy of the first Malagasy Bible. As far as I can ascertain, there are only about nine or ten copies of this Bible known to be in existence. These are in (1) the British Museum (as above); (2) the British and Foreign Bible Society's House, London; (3) the late Mr. Fry's collection, also at the B.F. B.S.'s House; (4) the L.M.S. College, Antananarivo; (5) Rev. W. E. Cousin's collection, Antananarivo; (6) one in my own possession; and probably three or four more still in the hands of native Christians or of missionaries. My own copy I obtained some years ago from one of the old Malagasy Christians, giving him instead three or four copies of the later Bible edited by Rev. D. Griffiths (1865), as well as some money. It is a perfect copy, containing the double titlepages (English and Malagasy), and glossary at the end, explaining introduced words, like 'angel,' 'tabernacle,' 'temple,' etc. In several places it is carefully patched at the edge of the pages, where they have become frayed and worn from constant use; and it is in the original binding of very roughly prepared ox-hide. Altogether it is a very interesting memorial of the love of the early Malagasy Christians for the Word of God, and not less so of the patient endurance and self-denying labour of the first missionaries, chiefly Mr. Jones and Mr. Griffiths, who carried out such a great work of translation and printing in such a country as Madagascar was from sixty to seventy years ago.—J.S. (ED.)



NATURAL HISTORY AND BOTANICAL NOTES.

Notes on some Malagasy Birds.—The Rev. E. O. Mc. Mahon writes me (J.S., ED.) as follows: "I send you a few remarks on your papers on the Ornithology of Madagascar in the last four ANNUALS. I have not much knowledge of Ornithology, but have shot from sea to sea across Madagascar, and know most of the birds, so perhaps you will not think me impertinent.

Fody. The *Fodisy* may be termed 'Lesser,' but as a matter of fact, it is rather longer in the body than the ordinary red one, and I do not think it is smaller in size. They get *very* yellow in summer, and the hen too is tinged, so as to be more yellow than brown. I have seen as many as 200 nests in a large tree in a Sâkalâva village, mostly made of long blades of grass, which

the birds hang down so as to form an entrance to the nest. The Sàkalàva say a white *Fody*, which they call the *andriana* (prince), occasionally visits the colony. This was affirmed by different persons, so there is some truth in it, I suppose.

"*Vorombé mainty* (p. 420). There is a large black Heron (?) to be found on the west coast, and at Lake Itasy occasionally; the body and head are the same shape as those of the Flamingo, with long yellow beak. The Hova call it *Rainikoto** I forget the Sakalava name. It is shorter in the leg than the Flamingo, otherwise it is like it, and in flight too it is very like it. It is rather rare. I have not seen it described, and am wondering if this is the same as the bird called *Vorombe mainty*.

"*Vantsiona* and *Otrika* are names used indifferently by the Hova for the Coot, but I think the *Vantsiona* is the Red-crested, and the *Otrika* the White-crested, Water-hen. There are two others that I have seen, which seem to be varieties: one with light greyish-blue feathers in the wing, a smaller bird than either of the two above mentioned; also a much larger bird, blue, with a reddish crest in the shape of a horn, and found on the west coast.

"*Cormorants*. The *Trozona*, I fancy, is a larger kind than the ordinary *Manàrana*. I have shot it, and have noticed that the breast was black, with yellow spots; the neck is very long.

"The *Honjo* has only one part of it white, viz. the eye of the drake; it has no white on the back. It would be appropriately named 'Black-duck.'

"*Gulls*. There is a kind of Gull which has been seen at Lake Itasy quite lately; they call it *Vorondriaka*. It is to be found on the west coast and is known there by the same name. It is a very pretty bird, with red legs and bill (eye too, I think), and with very little black on the wings; the body is quite white. It may be a Tern.

"*Tàtalsiry*. M. Pollen probably meant that this bird flies *low*, not 'heavily,' for it is one of the fastest flying water-birds, but never rises high in its flight. The male bird has two tints of green, light green above and dark green below, the eye is divided by a white line. The hen is freckled, rather than marked, about the head and neck. It is curious that the *Tsiriry* of the Hova is always called *Vivy*, and the *Vivy* is called *Tsiriry* by the Sakalava.

"The *Sàma* (*Sàma*ka, Tak.), found on Lake Itasy and on the lakes in Bètsiriry, has pink feathers on the breast and under the wings, with black bands on the wings; the bill is long and straight. The largest I have shot measured 6 ft. 6 in. across the wings, and 5 ft. 10½ in. from toes to tip of beak, the beak being 11 inches long. There is another kind on the west coast, with body and neck all white, but wings all red, both outside and in with no black at all; and the beak is more in the shape of that of a Spoonbill, but not so developed; but the great difference in the appearance of the two birds struck me directly."

— E. O. MC. MAHON.

Madagascar Cormorants.—The name *Manàrana* I have never heard applied, in the interior at any rate, to any bird but the Darter, and to the smaller of the two (*Plotus melanogaster*). The *Manàrana*, or Black-bellied Darter, is often seen on rocks in rivers; it is black, or at any rate dark in colour, when seen from a distance. What may be its real colour I know not. Though it has a long neck, this is by no means so long as that of the other Cormorant. The *Vorompisàky* (*Phalacrocorax africanus*) I have seen on the River Matsiatra in Bètsileo. It is exactly like the illustration in Vol. iv. (p. 199) of *Cassell's New Natural History*. As far as I can remember, this is a much larger bird than the *Manàrana*. It is also much rarer. It often settles on trees.—R. B. (ED.)

Madagascar Scorpions.—"At the present time we unfortunately have no

* A very common personal name, meaning 'Father of the boy.'

intimate knowledge of the Scorpions of Madagascar. Two peculiar genera of Buthidæ, however, namely, *Grosphus* and *Tityobuthus*, occur, and two species ascribed to *Babycurus* have been recorded; there is also one peculiar species of *Opisthocontrus* known. The last two are African genera, and the first two are essentially African in their affinities. It is, however, highly interesting to note the apparent absence from this continental island of almost all the large African genera of Scorpionidæ and Ischnuridæ. The differences between the genera of Buthidæ inhabiting Africa and Madagascar point to long separation between the two areas; while the absence from Madagascar of the Scorpionidæ seems to indicate that the latter made their way into Africa after the separation had been effected.

"The absence of nearly all the large Ethiopian forms from this island shows that the severance from the mainland took place before the typical African genera had appeared in the country. And the presence in Madagascar of genera of Buthidæ and Ischnuridæ, peculiar, but with marked African affinities, points to the conclusion that, at the time of the connection with Africa, species of these two families were the principal, if not the sole, representatives of Scorpions in the Ethiopian Region.

"A discussion of the fauna of Madagascar naturally leads us to inquire whether a study of the distribution of Scorpions affords any support to the hypothesis of a former direct connection between this island and the Oriental Region. But since there is no similarity between the species of the two areas, we may dismiss the subject by saying that the Scorpions do not furnish a particle of evidence that the union has ever been more complete than it is at present."—*Natural Science*, May, 1894; pp. 358, 362.

Protective Resemblances in Insects.—"A most interesting example of individual adaptation, regularly occurring amid natural surroundings, has recently been added to the beautiful series exhibited in the Central Hall at the British Museum (Natural History). In the forest of Môramanga, which is in Madagascar, about 65 miles east of Antananarivo, there lives a Homopterous insect, which men (scientific men) call *Flatoides dealbatus*. When this insect settles, as is its habit, on the bark of the forest trees, it becomes almost imperceptible; for each specimen, though differing slightly from its neighbour, bears, when its wings are closed, a most striking resemblance either to plain bark, or to bark covered with green moss or grey lichen. This, as the Museum label, with true scientific caution expresses it, is 'a fact which seems well calculated to afford them protection.' Madagascar has also furnished the Museum with the curious beetle, *Lithinus nigrocrisatus*, whose black and white or yellowish colour and black hairs render it almost indistinguishable from the lichen-covered twigs among which it lives. Some sceptics say that birds must be very foolish creatures to be deceived by certain so-called protective resemblances; but the birds in Madagascar must be very old birds indeed if they often get a meal off either of these marvellous examples of mimicry".—*Natural Science*, June, 1894, p. 406.

"Madagascaria."—"Yet one more scientific publication. *Madagascaria* is a monthly, dealing with the zoology, geology, botany, and anthropology of Madagascar, which Mr. F. Sikora intends to produce, starting on October 1, at Antananarivo, a place that as yet has not got beyond its well-known *Annual*. Yearly subscriptions of six shillings and fourpence (eight francs) may be sent to the Comptoir National d'Escompte in Paris, addressed, 'Pour Mr. Sikora à Antananarivo.'"—*Natural Science*, Oct., 1894.

[Nothing is known here (Antananarivo) of this publication.—EDS.]

Insects found in the Madagascar Pitcher-plant (*Nepenthes madagascariensis*, Poir.).—Mr. G. Scott Elliot says: "I found the pitchers in this species to be usually from a third to half full of the decomposing remains of insects.

In almost every pitcher there are live maggots or worms, which I could not manage to preserve, apparently living on the remains. Amongst the insects I selected at least thirteen species of Coleoptera (a species of *Hoplia* being very abundant); ten species of Lepidoptera; seven kinds of Hemiptera; four species of Hymenoptera, of which one was a sand-wasp nearly an inch long; twelve species of Diptera, including specially *Tipulæ*, green flies, and house flies; two Grasshoppers; two Dragon-flies; and one Spider.—Fort Dauphin."—*Annals of Botany*, Vol. v., No. xix. Aug., 1891; p. 376.

Brief Notes on a few of the most striking and recently described new Plants from Madagascar.—In the *Kew Bulletin*, and in various numbers of *Icones Plantarum*, the following among other new plants have been described:—

Clerodendron aucubifolium, Baker. This is a shrub found in woods on the north-east coast, especially in the Ihàrana province. It has large pink flowers.

C. eucalycinum, Oliv. This shrub occurs in the open country in the extreme north of the island about Antômboka. The pink flowers are three or four inches long.

C. Baronianum, Oliv. A shrub found about Antongil Bay. Its flowers are from four to five inches long, the corolla consisting of a very long and very narrow tube, with five spreading lobes at the top.

Besides these there are other very fine species of *Clerodendron* in Madagascar, notably *C. macrocalycinum*, Baker, *C. rubellum*, Baker, *C. magnoliæfolium*, Baker, and *C. petunioides*, Baker. There are 20 species known altogether in the island. Of these plants the *Kew Bulletin* says:—"The genus (*Clerodendron*) is represented in Madagascar by many large-flowered large-leaved species, which are well worthy of being brought into cultivation."

Ixora siphonantha, Oliv. This is the plant referred to in ANNUAL XVI. bottom of p. 437. I found it in the forest to the north of Antseranambè, a few miles south of Mananàra, near the southern end of Antongil Bay. I only saw one specimen. The flowers are yellowish, tubular, and occur in cymes, each flower being from seven to eight inches long. Prof. Oliver says of this plant: "A noble addition to this large genus. I do not know any species of *Ixora* with flowers so large."

Vitis glossopetala, Baker. This climbing plant is extremely common along the east, north, and north-west coasts, perhaps also around the greater part of the island, and for some ten to fifteen miles inland. It is perhaps the commonest of all climbing plants in the part of the island where it grows, often largely hiding the trees or even woods with its foliage. It may be known by its strongly ribbed leaves, the largest of which are about fifteen inches across, but which become smaller and smaller until those at the end of the plant are not more than two or three inches across. It has yellow flowers.

Nicodemia Baroniana, Oliv. This is found on the north-east coast from Sàhambàvany to the north end of the island. It also grows on the mountain of Ambôhitra.

Polycardia Baroniana, Oliv. and *Polycardia centralis*, Baker. These are shrubs or small trees growing in woody places in the Antankàrana country (extreme north-west coast). All the species, six in number, are confined to Madagascar. Their great peculiarity is that the flowers grow on the leaves, generally in a sinus or notch at the end or at the edge, but in *P. centralis* they grow in the middle of the face of the leaf.

Dictyosperma fibrosum, C. H. Wright. This palm, which yields the Madagascar Piassava (See *Kew Bulletin*, Oct. 1894), proves to be new, and has only recently been described.—R. B. [ED.]

LITERARY NOTES.

New Books on Madagascar.—*Madagascar en 1894*; 1 vol. 8vo, Paris.—*Histoire Physique, Naturelle et Politique de Madagascar*; vol. I. *Histoire de la Géographie*, par ALFRED GRANDIDIER, Membre de l'Institut; 4to pp. 350; Paris: 1892. This is a new and enlarged edition of the volume of M. Grandidier's great work which was originally published in 1885. It contains elaborate tables of the positions and names of every place:—village, river, mountain, cape, or inlet, which is known either on the coast or in the interior of Madagascar; a list of navigators, naturalists, and travellers who have mapped or described the coast of the island; a list of itineraries followed by travellers and missionaries, with map of routes; a list of maps of the country as a whole from the time of Edrisi (A.D. 1153) to 1891 (these number 213); a list of local plans and charts; lists of bathymetric, oro-hydrographical, meteorological, magnetic, itinerary, ethnographical, zoological, botanical, geological, and missionary maps of Madagascar, as well as of those showing lines of post, steamers, etc., and a list of panoramic views of the coast. All these are given with the most minute and elaborate particulars, so that the whole forms a monument of patient research, and is a storehouse of information on every subject relating to the geography of this island. Other portions of M. Grandidier's work have also appeared during the year, but unfortunately I have not yet received, as I had hoped, the list of these, which M. Grandidier is usually so kind as to send me every year.—J.S. (ED.).—*A Concise Introduction to the Study of the Malagasy Language as spoken in Imerina*; by REV. W. E. COUSINS; third and enlarged edition; L.M.S. Press, Antananarivo: 1894; pp. 118.

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à Madagascar;" *Ann. Geogr.* iii. 1894.—MONS. F. E. FOULONNEAU: "Etude commerciale sur Tamatave (Madagascar);" *Bull. Soc. Geogr. Com. Bordeaux*, 16, 1893, pp. 417-433.—DR. RENEWARD BRANDSTETTER: "Die Beziehungen des Malagasy zum Malaiischen;" pt. 2 of *Malayo-polynesische Forschungen*; Luzern: 1893; pp. 43 (see ante, pp. 155-175).—MONS. E. OUSTALET: "Les Aepyornis;" *La Nature*, 30 Juin, 1894; pp. 69-75, with 3 illustns.

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METEOROLOGICAL OBSERVATIONS AT ANTANANARIVO.

THE particulars given in the following columns were taken at the L.M.S. College, Faravohitra, the northern suburb of Antananarivo, 4,700 ft. above the sea-level, and may, I think, be regarded as the minimum readings for almost any situation in the Capital, owing to the continual exposure of the College to the E. and S.E. winds.

Immediately below is appended a summary of rainfall and mean average temperatures for each month as compared with that of past years, from which it will be seen that the temperature has been higher for every month excepting February than the average temperature for the last 8 years, April being no less than 6° above the average. The average mean temperature for the whole year has been 64° Fahr., whereas the average mean for the last eight years has been 61°.

The rainfall has been heavier than usual; that for January and February combined being 10 inches above the average. The rainy season set in earlier than usual, and the rainfall for

September is the highest recorded for that month. The total rainfall for the year (61·36 inches) is the heaviest since 1887, and much higher than the average for the last 14 years, viz: 53·86 ins.

	Rainfall for 1894.	Average for 14yrs.	Highest max. temp.	Lowest min. temp.	Mean temp.	Average mean temp. for 8 yrs.
January	19·30	11·73	83	52	69·35	67·8
February	13·41	9·94	82·6	58	64·55	67·58
March	3·36	6·35	83	56	69·35	66·24
April	·33	1·81	80	54	66·75	90·45
May	·00	·66	73	50·5	59·35	58·73
June	·00	·55	73	42	56·25	54·53
July	·00	·18	70	45	59·75	53·75
August	·87	1·04	69	46	58·3	54·59
September	3·22	·865	74	50	61·55	59·04
October	1·19	3·21	80	52	65·94	63·83
November	4·09	5·17	83	54	69·46	66·13
December	15·61	12·36	83	59	70·5	68·13

JAMES SHARMAN.

METEOROLOGICAL OBSERVATIONS AT MOJANGA.

THE observatory was opened by me on 1st April, 1892, and is one of the second order of the Meteorological Society, London. It is situated on a hill 140 feet high about one mile from the town and overlooks the Bay of Bembatoka to the south and the sea to the west. All the instruments are supplied by the Meteorological Society of London and have been duly tested. The thermometers, dry and wet bulbs, maximum and minimum, are kept under a shed in a cage as advised in Blandford's *Vade-mecum*. The following instruments have been added during the year: two earth thermometers, one with bulb plunged 18" and one 42" in the ground, a grass minimum thermometer (which unfortunately was broken on the 17th September and is yet to be replaced), and an anemometer. The dew point, vapour tension, and humidity are calculated by Glaisher's Hygrometrical Tables.

Stratton C. Knott.

TABLE OF EXTREMES FROM 1st NOVEMBER, 1893, TO 31st OCTOBER, 1894.

Months.	Barometer.		Thermometer.						Greatest daily rainfall in inches.	Remarks.	
	Highest reading.	Lowest reading.	Maximum highest.	Minimum lowest.	Solar highest.	Grass lowest.	Earth.				
							18"	42"			
1893											
November.	30·115	29·897	93·9	69·1	165·0					·60	
December.	·073	·808	92·2	70·2	171·6					4·64	
1894											
January ...	·004	·742	91·3	71·0	170·0	71·5	94·9	90·9	5·43		{ Cyclone at Nosibé on 5th ENE. VN. force 9-10.
February...	29·987	·723	93·2	71·2	177·4	70·5	98·9	93·8	1·09		
March	30·054	·812	95·5	72·3	170·8	70·0	98·1	94·0	2·62		{ Gale on 29th and 30th from S. to N. by E., force 7, also at Nosibé.
April	·077	·616	92·8	68·3	160·7	65·8	94·4	91·9	4·69		
May	·163	·945	88·0	66·1	158·7	61·0	88·8	88·8	·43		
June	·234	·988	86·2	62·8	151·9	53·4	87·0	87·4			
July	·250	·998	88·8	62·0	161·8	56·0	86·0	85·7			
August	·192	·992	90·4	64·2	156·8	58·5	87·1	86·9	·34		{ * Minimum grass thermo- meter broken on 17th Sept.
September.	·186	·954	92·1	66·8	158·0	59·2	90·9	90·7	·05		
October ...	·116	·864	96·5	69·1	160·3		92·3	93·9	·45		

TABLE OF MONTHLY MEANS FROM 1st NOVEMBER, 1893, TO 31st OCTOBER, 1894 (MOJANGA).

Months.	Barometer, reduced to 32° Fahr. at mean sea level.	Temperature.				Elastic force of aqueous vapour.	Wind.		Anemometer, hourly mileage.	Clouds, amt. (0-10)		Rain, amount in inches.	Thermometer.				Humidity.		Weather, No. of days of											
		Dry bulb.	Wet bulb.	Dew point.	In. 5 p.m.		In. 11 a.m.	In. 5 p.m.		In. 11 a.m.	In. 5 p.m.		Max.	Min.	Solar.	Grass.	Earth 18° 42°	11 a.m.	5 p.m.	Rain.	Thunder.	Overcast.	Clear sky.							
1893.	30.061	29.973	86.6	81.9	71.7	73.5	62.2	67.8	56.9	68.5	1.7	2.6	3.7	2.2	1.09	89.1	72.8	155.2						40	63	5	1	2	11	
Nov.	29.998	29.912	84.2	82.4	75.3	75.4	69.5	70.9	72.9	75.7	1.4	2.2	6.0	6.0	11.68	86.7	74.2	153.7						63	68	11	8	10	3	
Dec.	29.924	29.853	82.6	82.0	76.2	76.2	72.0	72.3	78.8	79.5	1.5	1.8	9.0	9.3	18.62	85.5	73.7	152.4	73.4	88.6	88.3	71	73	17	5	26	0			
1894.	29.934	29.854	84.7	84.7	76.7	77.3	71.5	72.4	77.5	79.8	1.5	1.8	8.1	6.8	3.64	87.8	74.6	157.0	74.8	93.5	91.8	65	67	13	4	15	0			
Jan.	29.966	29.887	85.3	85.6	76.3	77.1	70.4	71.6	75.0	77.7	1.5	1.4	6.5	4.6	7.97	88.6	75.1	156.1	74.1	94.0	92.2	62	64	16	9	8	4			
Feb.	29.982	29.905	85.1	85.1	74.4	76.2	67.4	70.4	67.9	74.9	1.8	1.5	5.0	4.5	8.45	88.7	73.2	150.8	72.0	91.3	90.3	56	62	8	6	9	7			
Mar.	29.982	29.905	85.1	85.1	74.4	76.2	67.4	70.4	67.9	74.9	1.8	1.5	5.0	4.5	8.45	88.7	73.2	150.8	72.0	91.3	90.3	56	62	8	6	9	7			
Apr.	30.060	29.994	82.4	81.6	71.7	72.8	64.5	66.9	61.4	66.4	1.5	1.3	7.5	3.5	5.8	85.2	70.3	146.0	67.8	86.8	87.5	55	61	2	1	3	15			
May	30.156	30.081	79.6	79.8	65.9	67.7	56.6	59.5	46.1	51.3	1.4	1.3	9.2	1.2	3.6	83.6	65.9	142.6	59.2	84.0	85.6	46	50	0	0	0	14			
June	30.145	30.071	80.3	79.2	66.9	69.3	57.8	62.5	48.2	57.7	1.2	1.5	8.3	2.4	3.9	84.9	66.5	143.4	61.6	84.0	84.7	46	58	0	0	4	15			
July	30.138	30.053	81.7	80.9	66.6	69.4	56.4	61.6	46.0	55.8	1.5	1.7	8.6	2.5	4.8	86.8	67.1	147.5	92.5	85.6	86.1	43	53	4	1	6	14			
Aug.	30.103	30.020	84.4	79.8	69.0	71.5	58.9	65.8	50.5	63.7	1.8	2.1	8.9	1.7	0.5	87.1	69.5	148.4	63.8	88.5	88.2	43	63	1	0	2	19			
Sept.	30.032	29.955	87.4	82.5	71.8	74.0	61.8	68.3	55.4	69.6	1.4	2.4	9.1	1.8	1.6	90.6	73.2	151.5		89.9	92.2	43	63	5	6	0	21			
Oct.																														
Means	30.042	29.963	83.7	82.1	71.9	73.4	64.1	67.5	61.4	68.4	1.5	1.8	8.6	4.3	4.4	Total.	87.0	71.3	150.4	67.7	88.6	88.7	53	62	82	41	85	123		

METEOROLOGICAL OBSERVATIONS AT AMBAHY, S.E. COAST.

Months.	Barometer at sea level.		Thermometer.				Wind, force.		Cloud, amount.		Rainfall.	Thermometer.		
			Dry bulb.		Wet bulb.							Max.	Min.	Sol.
	9 a.m.	3 d.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.	a.m.	p.m.				
1893.														
November.	30°37	30°30	81°6	82°3	74°9	75°2	1°9	1°8	2°1	1°06	°006	89°2	63°7	144°4
December.	30°23	30°16	84	83°7	80°3	80°9	1°9	2°1	2°6	2°9	°31	90°6	64°3	146°7
1894.														
January ...	30°17	30°18	81°8	82	79	81°5	2	2	3	3	°37	90°9	63	149°3
February...	30°20	30°15	83°1	84°2	80°3	80°7	1°7	2°1	3°3	2°1	°50	89°5	61°9	146
March	30°23	30°21	83°8	85°2	81°1	82°5	2	1°8	2°2	2°1	°33	90	43°4	143°1
April	30°30	30°25	99°6	85°3	75°3	75°5	2°06	2°1	3°7	3°2	°18	88°3	54°5	130°6
May	30°36	30°28	75°7	75°1	70°8	70°7	2°1	2°6	2°3	2°9	°37	82°6	54°2	123°2
June	30°46	30°41	71°7	70°9	69°4	70°8	2	2°2	2°3	2°1	°12	81°4	51°5	120°9
July	30°48	30°42	68°9	73°5	64	71°3	1°4	3°2	2°9	2°5	°18	80°8	52°4	121°2
August	30°48	30°43	72°7	74°7	69°6	69°9	1°7	3°8	2°3	2°3	°24	81°6	56°2	124°6
September.	30°37	30°35	73°4	75°3	69°3	67°8	2°5	1°9	3°1	2°5	°33	82°4	61°3	129°4
October ...	30°34	30°28	79°4	79°8	72°9	73°9	3	4°2	2°4	1°9	°14	85°6	59°8	135°1

EXTREMES

Month.	Barometer.		Thermometer.			Greatest rainfall.
	Highest reading.	Lowest reading.	Highest max.	Lowest min.	Highest solar.	
November	30°44	30°30	92	54	157	°05
December	30°36	30°09	96	61	159	3°13
January	30°32	29°98	96	59	159	1°90
February	30°28	30°07	96	58	159	3°26
March	30°33	29°80	95	55	155	3°35
April	30°36	30°10	95	50	142	°85
May	30°54	30°18	87	51	136	3°70
June	30°63	30°18	88	44	131	1°35
July	30°65	30°25	87	47	130	1°15
August	30°65	30°31	85	51	139	2°20
September	30°54	30°15	86	53	140	2°30
October	30°46	30°13	90	51	150	4°00

E. PRYCE JONES.




THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

A RECORD OF INFORMATION ON THE TOPOGRAPHY AND NATURAL PRODUCTIONS
OF MADAGASCAR, AND THE CUSTOMS, TRADITIONS, LANGUAGE,
AND RELIGIOUS BELIEFS OF ITS PEOPLE.



EDITED BY THE
Rev. J. SIBREE, F.R.G.S.,
AND
Rev. R. BARON, F.G.S., F.L.S.

Missionaries of the L.M.S.



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* We much regret to see that Mr. Newton's name, as the author of this article, has been accidentally omitted in the text. —EDS.

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2. NORTHERN MADAGASCAR.



THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

THE "NATURAL BRIDGE" ON THE ROAD TO
MAHANORO.

THE following account of a remarkable natural bridge between Antanànarivo and Mahanòro, by the Rev. G. K. Kestell-Cornish, M.A., appeared in the *Madagascar News* of Dec. 24, 1892 :—

"On my way down country the other day I came across such a wonderful piece of scenery that I should like to make it known through your paper, for the benefit of anyone who may chance to be travelling over the same road.

"Imagine a natural bridge of solid rock about 50 yards long, across the River Manàndra, supported near the centre by an enormous pillar, which appears to be part of the solid rock both above and below it ; the height of the pillar is some 25 feet, and the thickness of the bridge above it about the same as the height of the pillar. Standing under the bridge, the breadth of which is colossal, you get a view second to none that I have ever seen—two lovely waterfalls, one above the other, with forest-capped cliffs on either side of the gorge. The effect of the whole defies description.

"Now for a few directions for the guidance of anyone who may find himself near this lovely spot. I am afraid it is rather an off-chance, for not many people come down to Mahanoro from the Capital.

"All *mpilànja* [bearers] know that there are two roads from Anòsibè to Mahanoro, and to avoid the terrible hills on the southern route, which is distinctly shorter, they generally take the northern one, which leads to Bèparásy. My advice is : take

the southern road in spite of the hills; sleep (the second night from Anosibe) at Sàhavàza; leave next morning and go on through a village called Andrànobé, but stop at the top of the hill above the next village, Ambòdimànga, and look out for a path going off to the left, or west. This path will bring you to the *top* of the bridge, from whence the best view of the waterfalls is to be obtained. When you have had enough of that, go on to Ambodimanga and ask the way to *Antetèzan-tàny*. It is very easily found, but you have to be a little bit nimble on your legs to get up to it, as the river bed is full of massive boulders. If possible, take a camera. Alas! after getting a view of the falls from the top of the bridge, I sent my camera on to the place where we had arranged to sleep—Antsàhan-òmbly, never dreaming of what I was going to see below."

Having recently had an opportunity of seeing this bridge, I can fully corroborate all that Mr. Kestell-Cornish says about it, for it really is one of the most wonderful and picturesque sights imaginable. It is of course difficult to compare one natural phenomenon of this kind with another, but if the bridge and its surroundings were situated in the British Isles, it would not improbably rank in fame with Fingal's Cave and the Giant's Causeway. Having seen all three, it is difficult for me to say to which I should award the palm. The vegetation round about it, at any rate, gives it a charm which is totally absent from the two former.

A few notes and approximate measurements which I made on the spot may perhaps be of interest.

First of all then, there is a deep ravine which has been excavated by a small river (the Manandra). At the head of this ravine, and crossing it at right angles, there is a steep crag, down which the water falls in two beautiful cascades. The river then follows the ravine for some sixty or eighty yards, more or less, until it comes to the bridge, under the arch of which it passes, the whole bed of the river being filled with masses of rock, large and small. The top of the bridge is nearly level on the one side with the surface of the country out of which the ravine has been cut, but on the other side of it, the ground rises much higher, the whole country in the immediate neighbourhood being covered with forest.

The bridge itself, which spans the ravine, is a perpendicular mass of gneiss reaching probably to a height of 500 or 600 feet, possibly more. The actual length of the archway is about 200 feet, the width about 25 feet, and the height, in its highest part, about 20 or 25 feet. These measurements are of course only approximate, but they cannot be far from the truth, as, although made quite independently, they so nearly agree with those

Mr. Kestell-Cornish gives. At one end, the arch slopes away extremely gradually, the other end is more abrupt. This arch has been bored through a thick bed of coarsely crystalline rock, white in colour, but with a faint bluish tint, intercalated in the gneiss. This fact indeed accounts for the formation of the bridge. This rock is of such an anomalous character that it is difficult to give a satisfactory name to it. In outward appearance it is very like a crystalline limestone, but a more critical and microscopic examination shows it to be composed, for the most part, of white felspar (plagioclase, orthoclase, and microcline), and quartz, associated with which, but in lesser quantity, are found calcite, good-sized crystals of tremolite, apatite, and scattered grains of iron pyrites, sphene, and green epidote. It is impossible to give any satisfactory designation to such a combination of minerals, but for lack of a better name it may be called an extremely impure aplite. Near the middle of the bridge there is a pillar-like mass of very black compact rock. On examination, this is seen to be a basaltic dyke. It is three yards wide, and not only forms the pillar, but passes perpendicularly through the overlying masses of gneiss. It is a fine example of a basaltic dyke. Several other dykes of basalt, or rather veins, as they are very much narrower, may also be seen projecting slightly from the roof of the archway, especially at the end which slopes down gradually.

Hanging from the roof directly above the river I noticed a number of lianas (*vàhy*) strung together. These, it seems, are fixed in a large cavity in the mass of the rock above the archway, the breeding-place of numerous bats, and form a rude ladder, by which the natives climb into it in order to secure the young bats, which are used as food. The cavity itself is not visible.

The first sight of the bridge, approaching it from below, is extremely imposing and charming, the lower of the two waterfalls above referred to being visible in the distance through the great span of the archway.

The top of the bridge is by no means so interesting, although both waterfalls at the head of the ravine are here distinctly visible, while the lower one only is seen from below. On the top of the bridge are some very ancient tombs, though all that is to be seen of them is some rude stones.

Of all the natural phenomena I have seen in Madagascar, this bridge is by far the most remarkable.

R. BARON (ED.).



A MALAGASY GHOST-STORY.

ONE evening I was sitting beneath the verandah of a house on the borders of the upper forest in Madagascar. It was one of those glorious evenings only to be found in the tropics, when the afterglow of sunset enriches and enhances the beauty of everything before darkness hides them for another night, when red flowers look like flame, and yellow like burnished gold. As the sun sank deeper below the horizon the colours slowly changed, one blending with another till all grew sombre. Over to the east, behind the forest, shot up the great white beams of the rising moon, distinct and regular. The trees stood out in bold relief; the very leaves seemed to separate and let the moonbeams through.

Grand as was the scene, my thoughts, I must confess, were hardly in keeping with it; I was thinking of pigs. I had been told by some natives that some wild-pigs had been devastating their crops, and I was wondering how I could get a shot at them that night.

As I sat puffing at my cigar, and wondering if it were possible to secure the services of an old native who was said to be exceptionally skilled in the matter of pigs, I saw a shadowy form coming towards me; and presently the dusky figure of a native stepped out of the shadow into the moonlight, his white *lamba* (a long cloth worn by natives) shining brightly as he threw it farther over his shoulder.

"Why!" I exclaimed, "it is Rainikòto himself—the very man I wanted. Hi! Rainikòto, will you go pig-hunting with me to-night?"

"How do you do, sir?" he said, with native politeness, before he answered the question. "What did you ask, sir?"

"Come with me to-night to look for that old boar that is eating up all your manioc, will you?"

"Where?"

"Oh, anywhere; I don't mind. At that little open glade in the forest about a rice-cooking* off, away to the east."

"At the clearing to the east?"

"Yes."

"I can't go; I have business to do."

"Nonsense, man! What business can you have to do?"

"I can't go, sir," he said again, squatting down on his hams beside me, and arranging his *lamba* so as to cover his mouth.

"But why?"

"I am an old man and don't care for sitting up all night, as I used to do. I like sleeping better than shooting. But what made you choose that place?"

"I thought it looked a likely spot, so many paths meet there."

"Go about midnight; you are certain to see a pig," he said, looking up with a curious expression.

I was surprised by the man's manner, it was so totally different from anything I had been accustomed to see in a native.

* A native way of measuring distance, equal to about a mile and a quarter.

"Funny you should pick that place," he added after a time.

"You seem to know it well and say it is good ; then why 'funny,' my relation?"

"Oh, I know it very well."

"I'll give you a dollar to come with me!"

The old man laughed. "It is a big sum," he said, "a week's pay. But not for fifteen weeks' pay would I come to that place at night, my master."

"Oh, all right!" I said, pretending not to be curious, "I'll go myself."

I watched for some sign ; but he sat looking out straight before him and evidently disinclined to talk. "Is there a ghost there, Rainikoto?"

"Yes, perhaps," he said, readjusting his *lamba*.

"Will you tell me about it?"

The old man sat perfectly still, as if in deep thought. No European could sit so long without moving. Not a limb moved, not the quiver of an eyelid. I waited for an answer, but none came. After a time, he took out his small polished bamboo tobacco-box. Shaking out a large pinch of the snuff-like preparation into the palm of his hand, he opened his mouth, and with a peculiar jerk, tipped it in below his tongue, a decided hint for me that he meant to keep his story to himself, whatever it might be. I knew it was no good pressing him then, so I lit another cigar and took no apparent notice. Presently, native fashion, he spat out his tobacco, and seemingly addressing himself as much as me, he began :

"White men don't believe in ghosts and witchcraft and *Vazimba* ;* they laugh at them and at those who do."

"Witchcraft, perhaps, my friend, and *Vazimba* and *sikidy* [divination] ; but we like to hear of ghosts. I do not feel at all like laughing, indeed, I very much wish to hear about it."

"It was a long time ago" (he began so suddenly it made me start), "it was a long time ago ; two kings and queens have turned their backs upon us since then. † I was but a little lad, but I remember it quite distinctly. I am old ; but I remember it well, as well as if it were only yesterday. My father was going into the forest to get wood, only a short distance, so he took me with him. We had not gone far when we heard the long low whine of a lost dog. 'The boar-hunters are out early,' said my father, evidently surprised, 'they must have slept in the forest. Ho ! è, è, è, è !' he shouted ; but there was no answer except from several dogs, which joined in one long howl. 'Ah ! they are all lost,' he said, 'and no one shouting to let them hear. Ho ! è, è, è, è ! Ho ! è, è, è, è !'

"Again the loud chorus came ringing and echoing through the wood. We turned aside and made our way in the direction of the dogs. Cry upon cry now arose. I remember it well. Am I likely to forget it ? It was early morning, and there had been a heavy dew ; my feet were cold and wet, and the dogs frightened me. I felt chilled and scared. My father had girded himself, and his brown skin glistened in the morning

* The *Vazimba* are the supposed aboriginal inhabitants, whose graves and spirits are held in great awe and respect. [See ANNUAL XVIII., p. 129.]

† The native idiom in speaking of the decease of a Sovereign. These do not *die*, they 'turn their backs' on their subjects.

sun. How fast he went! pushing his way through the tangled growth. I could scarcely keep up with him, for the thorny creepers caught my legs, although my father helped to clear the way, striking with his axe at the great lianas that stopped our path. I think in the excitement he almost forgot me, for he guessed that something was wrong, and he held his spear ready shortened in his right hand. It seemed a long, long time before we reached the dogs. They were all together in the clearing to the east. It has not grown up as others do; it is just the same. There they sat, some howling, some licking the wounds received from a tussle with the boar. 'Look, father; what is that?' I cried. 'Adré! adré! it is a corpse. There are two: Rainimanga and Rainizafy both killed by one pig,' he said, turning them over. Ah! I remember them well, sir, those gashed bodies. It was a horrible sight for any one, much more for a little lad. The shaft of a broken spear lay near; and still grasped in the hand of one lay the second spear. A look of surprise spread over my father's face as he gazed upon the man who held the spear. 'This wound would not have killed, and he never threw his spear. The other is nearly torn to bits! His spear has gone,' he said. 'I do not understand. And what is this? Money! fifteen dollars! How came that money here? Seven in one purse, and eight in the other?' He looked at me, and then, as if thinking aloud, he added: 'No! I will not take it. It has bad luck in it. I'll give it to their wives. Besides, if I kept it they would say I had killed these men. I wish I knew how they got it, though!'

"We soon raised the whole neighbourhood. The two men had come from the village over yonder," he said, pointing with his lips to a village about three miles away," and their friends went and brought the bodies in. What wailing and mourning there was! what beating of tom-toms! But the money my father gave up was much more talked about than the deaths. Never had any one but the chief—nay not even he—had so much before. The funeral was very grand: several oxen were killed, and there was a lot of *idaka* [native rum] in *siny* [earthen water-pots]. The money was a great comfort to their wives. We heard soon afterwards that a trader from the coast had dropped his purse, and he offered a reward; but then the reward was less than the money in the purse, so of course he never got it.

"I soon ceased to think of that day, though the shock lasted long. As I grew up, I too became a hunter and forester. Malagasy, as you know, are not fond of hunting like you white men; the Bezanozano tribe are the most so; but even only a few of us care for it. I liked it and soon became proficient. One day a white man came to our village and stayed there. He was looking for birds, which he skinned; he never ate them, which surprised us. He taught me to skin and shoot; and when he went away he gave me the gun. I was very proud of it; and soon I found I could get wild-pig much easier by waiting for them at nights and shooting than by hunting them with dogs. So I used to go to the bush where you wish to go to to-night."

He looked up at me with a sharp, keen, sidelong glance, as if to read my thoughts, and then proceeded: "I nearly always got some, though you white men don't, for you have no patience; you sit and wait for one hour, perhaps, and then you get up and walk a little, or think

another place better, or go home; but we Malagasy will sit without moving for hours. Whenever pigs came this way, I was sure to be waiting for them, and the glade you mentioned was a favourite place. You'll see some to-night, sir, when you go, for I know their habits well. The herd that were in the sweet-potatoes and manioc last night will come that way; they will be there about midnight and return about second cock-crow."

His wrinkled old face broke into a sort of satirical smile, as he paused. Without knowing quite why, I began to feel 'creepy;' but I answered with apparent unconcern: "Well, I hope so, Rainikoto. But you have not yet told me about the ghost, you know."

"Oh, I shall, I am coming to it. But you had better go, and it will save me the trouble of telling you. You will see it all then for yourself."

"I should like to hear it first, you know, to see if it agrees with what you saw."

"Well, master, you are my father and mother, and I should like to please you, but it is a long story."

"Go on, my relation," I said, answering his politeness in the orthodox way. He got up, readjusted his lamba, and squatting down a little more in front of me, began:

"It was on the 15th day of the moon Alâhasàty—"

"Why! that's to-day!" I said.

"Is it?" he said. "Let me think. Yes: so it is. That is funny.—Well, it was on this very day, about ten years ago, I went to watch for pigs at yonder glade. It was just such another night as this. The day had been very hot, and these little whirlwinds had been raising their dusty columns on the road—the spirits of our forefathers visiting the earth or returning to heaven, we Malagasy say. There had been a good many that day, I remember well. But they have not much to do with the story, nothing at least in your eyes. A herd of pigs had been among the village crops the night before. I had tracked them and found out the way they had come. I noticed the slot of a huge boar, and I meant to have him. They passed right through the clearing. That glade has never altered, as the others do; it is the same now as then; and it was the same then as when I was a little boy; but it never struck me till after that night, and then I noticed it. The grass grows just the same, and the trees do not seem to change."

The old man, I noticed, was dropping into the native style of rhetoric, a form not unseldom heard in British pulpits, a certain reckless way of wandering up and down the keys of thought, and then the persistent striking of a single chord, with an emphasis varying directly as the number of repetitions.

"Ay, it was just such another night as this, just the same; the same little fleecy clouds rushed across the full moon. The children were dancing in its rays, as they are now down yonder, and their song came rising and falling on the wind as now you hear it. The night was just the same; the crickets chirped and whistled in the grass; the great cicada rang his rattle as loudly as he now is doing—just the same. The dew was sparkling on the broad leaves, like tears on the cheeks of a young wife who has lost her child, her first-born. The frogs croaked in the

marshes—a sign of rain, I've heard you say; we call it the women's parliament, for it is no sign of rain. Croak they will, as frogs and women always must. They could not live without it; aye master, the night was just—

"The same, my dear relation. Let us agree that the night was just the same," I said, breaking in rather rudely, perhaps. "The very birds, beasts, fishes, insects, you know, they always are the same except when it is raining."

"I said you would laugh at me. If you laugh already, what will you do before the end?"

"I laugh! My dearest father and mother, I am so anxious to hear the end that I have even been rude. Pray excuse my haste; my eagerness out-stepped my manners." Malagasy are not easily offended, and he soon went on again.

"It was a short time before midnight that I started. I took my gun and spear and the usual little hatchet we all carry. No one went with me—I was quite alone. I soon reached the place and sat down, hiding behind a large clump of *sévabé*,* through the broad leaves of which I could watch the whole glade from end to end. It is about thirty *rèfy* (fathoms) long. The moon shone brightly; not a cloud obscured its rays; not a breath of wind could be felt inside the forest; but the tops of the taller trees rustled gently, and the twisting leaves showed their white linings with every little puff. The tree-frogs alone seemed to break the silence, for they alone were near me.

"I had sat about two hours and had seen nothing. I began to think the pigs must have passed out, or gone another way; and I had made up my mind to alter my position, so as to see them better when they came back in the early morning; but still I sat on, not caring to own myself at fault. I was just opening my tobacco-box, and had put my gun down by my side; my spear was sticking upright in the ground before me, and my axe on my knees, when I became conscious that something was going to happen, but I knew not what. I felt my head, to see if I were faint or dreaming. I never felt any feeling like it before, or since—a sort of trembling, cold, indescribable feeling, as if one's spirit were fighting with one's body. I was afraid, and thought I was ill—perhaps dying, perhaps bewitched, and I rose to go home. So disturbed was I, that I forgot to pick up my gun. Just at that moment a huge boar rushed past, his bristles all up, and his little eyes flaming from under his grizzled brows. He was covered with mud from head to tail; his jaws were set as if for fighting; he looked distressed and evidently hunted, being hard put to it. He was the largest and oldest boar I had ever seen, for his horns† were very long and large, and his tusks gleamed long and sharp in the moonlight. I could easily have shot him, had I had my gun; but I was startled and surprised, and he was past before I regained my presence of mind. I held my axe, though, and without knowing what I did, I hurled it after him. Round and round it flew and lit a foot in front. I thought it must have grazed him, but he never stopped. I was

* [A shrub, *Solanum auriculatum*, Ait.—EDS.]

† The Malagasy wild-boar has a large horn-like growth above each tusk.

astonished, for nothing followed ; and a thing that did not strike me at once, but which I vividly recalled afterwards, was that there was no sound, yet he had run right through some dry fern."

The old man stopped and altered his position. It evidently made him nervous to recall that night's adventures, even when sitting inside a verandah and near one of the all-powerful white men. Glancing timidly over his shoulder, he began again :

"I got up, master, and picked up the axe. For a time the funny feeling had left me, owing, I suppose, to the excitement ; but as I touched the axe, my hand shook like a rush in the wind and became as cold as the dead. I looked at it to see if there was blood on it, and I ran my finger along the edge. It was the finger of the other hand, and it shivered like the hand that held the axe. I was horribly afraid now, and knew not what to think. I wished to go home ; but I wished still more to know what had become of the boar, and what had chased it. I remembered his enormous size, and I thought my eyes, being ill, might have magnified it, or that I had even seen a vision. I stooped down to examine the slot in the wet clay, but there was not a mark. I could not believe it. I knelt down and peered into the clay ; not a sign. I was on the point of rising—oh, sir, I shall never forget it, no ! not to my dying day. There he was !—the boar ! right on me, not ten yards off, and coming hard down on me—looking death in every line. I gasped, I shuddered ; but I was still a man, and all my trembling ceased as I jumped up for one last effort. There was no room to move, for I had followed him out of the glade to that narrow passage between the high clay banks ; for there, if anywhere, I knew his marks would show. Five feet perpendicular banks on either hand, and an immense boar in full charge. He had come without noise, or I must have heard him yards away. I had just time to get on my feet and strike at his head with the axe with all my force ; I meant, as soon as I felt the axe bite, to jump high and so miss the rush and tusks. It was no use to jump and not strike, for he would have turned on me again. I just saw his great red carcase as it loomed before me ; there was time for much thought, but for little action. Down came my axe on his head ; but there was no resistance ! I lost my balance, for I had thrown all my weight on to the blow, and fell right on to the top of him !

"I shut my eyes and breathed a prayer to the Great Spirit to receive my soul. I knew I was a dead man, unless a miracle was wrought, for I should never be able to get up before he would be on me again, even if he missed me then. How long I lay I knew not ; but at last I found I was lying unhurt in the path, and no sign of the boar. I looked cautiously round without rising, in case he was there, waiting for me. How I ever missed his head I could not then imagine, for I was an expert axeman, and saw the blade fairly on him. Some sudden twist had saved him, I thought. But what was he doing ? I thought him mad. For there he stood at bay against a tree near the glade ; but not a sound, not a grunt, rushing as if at dogs with all his bristles set. Look, master, I see him now !" The old man had got up ; his eyes glared as his excitement increased, and I confess to having felt very uncomfortable myself.

"Look! there he stands! No, no! you can't see him, but I do! Yes! I see it all over again. I see him rushing madly at those phantom dogs, biting, goring, trampling, shaking them off; and then with one wild rush he broke his bay and run right up to me—spirit of my forefathers!—right through me, and only a shudder, a dull, trembling, cold, clammy shudder, as on he went. My hair stood on end; my tongue clave to the roof of my mouth, a horrid taste filled it; my knees shook; my heart leaped and bounded against my ribs, and I could not move. On he rushed. I watched him—aye, how I watched him! the great boar's ghost, for now I knew. Back again he came. He kept about the place. In desperation and half crazy myself, I gained strength to strike another blow. My axe passed through him, leaving a large gap, that closed again. My dread increased, and I thought I should have died. Fifteen dollars, you say! Nay! not for all the money you have would I pass that night again. It would mean death now, for I am older, and my heart could not bear the strain, even if that were all.

"But there is worse, worse! I wonder I ever lived to tell the tale. The boar had broken by twice, and was standing for the third time, when I saw two men run into the glade. They were girded tight, and had on the little straw skull-caps we foresters wear. They each had his spear raised, and rushed together towards the boar. I saw their mouths work, but heard no sound. They were both fine tall men, almost of the same height, and very like each other—for were they not brothers! I was then almost in a stupor from long-continued fear. I could neither move nor speak, only look. I wished to cry out, but could not, for I knew they must be the two men, Rainimanga and Rainizafy, whose bodies we had found dead years ago, when I was but a little boy. I knew I should see how it all happened now. I was close to where they passed, but they took no notice of me. As they did so, the same chill ran through me once more, as it had done when the boar passed by. As they ran on, an evil look came over the face of the hindmost. I never saw so fiendish an expression; all the evil passions man is prone to seemed stamped upon that face. Handsome as he was, he looked like a *kindly*.*

"I could see all plainly, for an artificial light lit upon both the men and the boar. The hideousness of the man's expression increased till he got within a few yards of the boar; then he leaped upon his brother from behind and seized his throat. Ah! what a fearful struggle that was! I shrieked and shrieked; but my mouth was parched, and the scream ended only in an uncertain sound. I tried to shut my eyes, but I could not. Over and over the two rolled, but the vice-like grip never relaxed. The eyes seemed to start from the head of the one that was held; his face blackened, blood began to trickle from his mouth. It was horrible, horrible! A few moments more and all was over.

"The murderer arose, gave one look at the corpse, picked up his spear and rushed at the boar, which still stood at bay. High above his head he raised his spear, poised it, gave it the twisting motion, and then, quick as lightning, threw it. It struck well, just behind the shoulder.

* A kind of ghostly demon, the half-decomposed body of a man come to life again.

With one savage bite, the boar severed the shaft and charged the man. In the murder of his brother he had forgotten his axe. The boar was upon him. One great shock, and his leg was ripped up as he turned to flee. Back again, another rush before he had recovered himself, and the tusks ran into the bone and severed the sinews. The man staggered and fell. He dragged himself slowly, but another rush of the huge animal, and his side was open. Then the boar, with bloodshot eyes and staggering gait, ran away to die. I fainted, and when I recovered, it was dawn. For a year I was ill, and I have never sat for pig in that glade since."

"That day was the 15th day of the moon Alahasaty?" I asked. He nodded. "I think, my dearest father and mother," I said, "you must have been asleep." Whereupon he shook his head, rose slowly and departed.

C. P. CORY.

(From *Chambers's Journal*, Sept. 9, 1893.)



THE MAMMALS OF MADAGASCAR:

MALAGASY ANIMALS ARRANGED ACCORDING TO THE NATURAL ORDERS, WITH NOTES ON THEIR HABITS AND DISTRIBUTION.

PART II.*

CHAPTER IV.—THE LEMUROIDA (continued); THE TRUE LEMURS.

II.—THE LEMURIDÆ. We have now to consider the Lemurs proper, of which, according to M. Grandidier's classification, there are no fewer than 15 species and varieties in the genus *Lemur* alone: and all of which, as already observed, are confined to Madagascar and the Comoro Islands.

As to this family, M. Pollen makes the following general remarks: "There is only one species in which the tail presents, instead of one uniform colour, alternate rings of white and black, viz., *Lemur catta*. The others may be divided into three groups: (1) those of one uniform tint, whose ears are almost hidden under the thick and long fur. To this group belong (a) *Lemur varius*, a species exceeding all others in size, with black throat and a very variable system of coloration, and of which (b) *L. ruber* is only a variety, and (c) the *L. macaco* of Linnæus. (2) The second group has the muzzle of a light or whitish tint; this contains (a) *L. coronatus*, (b) *L. mongoz*, and its variety (c), *L. nigrifrons*. (3) And in the third group, all the species have the muzzle of a more or less deep black or, more rarely, passing into brown. These are (a) *L.*

* Continued from ANNUAL XVII., p. 84.

rubriventer, (b) *L. albifrons*, (c) *L. rufifrons*, and (d) *L. albimanus*." It may also be remarked that although some of the Lemurs are nocturnal, and others diurnal in their habits, they all differ from the Indris group in subsisting on a mixed diet; insects, small reptiles, birds' eggs, and the callow young of birds forming at least as important a part of their food as fruits. It is probably owing to this mixed diet that they are of a much hardier disposition than those of the Indris group, so that they flourish in confinement in Europe so well as not infrequently to breed, the number of young produced at a birth being either one or two.

"In consequence of their arms being longer in proportion to their legs than in the Indris group, the true Lemurs and their allies, when on the ground, are in the habit of going on all-fours, although capable of taking leaps of great length. The true Lemurs may be distinguished from the other members of the group to which they belong by the length of their snouts, and the large size of their tufted ears, as well as by their diurnal habits."

1. **The Variable or Ruffed Lemur** (*Lemur varius*, Geoff.). This species, says M. Pollen, has, so far, been observed only in the eastern central forests of Madagascar. It is found in large companies and is shy in character. Its voice is very powerful and can be heard at a considerable distance; and the howling which a number of them make when together resembles the roaring of a lion [*sic*] and is truly frightful. There are many varieties of this species; in some, black tints predominate, in others, white, while some are entirely white, and others are entirely black; the white tint is very general near the skin, and the black occurs in patches, the tail being completely black. The muzzle is long and prominent, and it has a ruff of long whitish hair round the throat and cheeks. M. Pollen is almost certain that the *Lemur ruber* of some naturalists is only a red variety of *L. varius*, having seen a specimen whose fur changed in colour so as to be identical with that of *L. varius*. M. Grandidier also classes the Red Lemur as a variety only of the Variable Lemur. It is called *Vàrikàndana* by the Bètsimisà-raka.

Mr. Ellis describes the habits of some of these Lemurs which he observed in captivity, and says that "though covered with thick, almost woolly, hair, they seemed to be ill at ease in wet or cold weather, but to luxuriate in the warm sunshine. I often noticed two or three of them together on a fine morning, after rain, raised up on their hind legs, on the outside of the house, leaning back against the wall with their fore legs spread out, evidently enjoying the warmth of the sun." "One we had on board ship conveyed its food—boiled rice and fruit—to its mouth by the hand; it was gentle and sociable, and seemingly grateful for any trifling notice or kindness. I frequently gave it water, which it lapped like a dog. It was scrupulously clean and seemed unable to endure any tar or other dirt on its shaggy coat." This species is said to be the largest of all the true Lemurs.

2. **The Red Lemur** (*Lemur varius*, var. *ruber*). This is a large and handsome animal, chiefly of a warm reddish brown, with black markings on the face. It is seen occasionally in the upper belt of the eastern forest. Native name, *Vàrikàndana*. As regards its classification, see the opinion of M. Pollen quoted above,

3. **The Macaco or Black Lemur** (*Lemur macaco*, L.; *L. niger*, Geoff.; *L. leucomystax*, Bartl.). These animals appear to be confined to the north-western parts of Madagascar, and are found in the forests from Diego-Suarez, at the extreme north, to Bémbatòka Bay and the island of Nòsibé on the north-west coast. They live in companies, keeping to the tops of high trees in impenetrable woods. These Lemurs are mostly seen at evening, when there is often a truly frightful uproar produced by their united outcries. Sometimes these cries are varied by a kind of growling, which is specially employed on the approach of any danger. The agility which they display in leaping from tree to tree is incredible; one can hardly follow them with one's eyes, and it is more easy to shoot a bird in rapid flight than to shoot these animals when leaping. They have also the habit, when hunted, of letting themselves fall suddenly from high trees into the bushes; but the hunter, believing them to be dead, is soon undeceived by seeing them reappear at a considerable distance upon other trees, so that the pursuit of them becomes very difficult.

If brought up in the house while quite young, these animals soon become very tame and gentle. Perched on the shoulder of their owner, they will eat any food he may offer them. They are fond of fruit, especially of bananas, which are indeed their ordinary food in a wild state. They are also very partial to the brains of birds, which they suck out and eat after having broken the skull with their molar teeth; the rest of the bird is then thrown away.

In certain parts of Madagascar it is unlawful to kill these Lemurs, or even to keep them living or dead. M. Pollen says: "Each time that I visited the island of Nòsifàly (N.W. coast), I had to take great care to assure the people that I would not bring any Lemurs, which, so the inhabitants say, would profane the island. Once it happened that the people of the island obliged me to take my booty to a village on the mainland of Madagascar, and to do this before landing on Nosifaly, so as not to bring misfortune on the inhabitants of the 'sacred island,' for that is the meaning of its name (*fàly*=*fàdy*, tabooed, sacred; *nòsy*, island)."

The native name of the Black Lemur is *Akòmba*. The males are always black in colour from youth upwards, while the females are yellowish-red, sometimes pale and sometimes dark, with white whiskers and a white patch on the lower part of the back. The fleshy pads on the feet and hands of this Lemur are largely developed, as described in the introductory remarks upon the sub-order generally.

"A female of this species in the Gardens of the Zoological Society twice gave birth to a young one, and thus afforded an opportunity of seeing the curious manner in which the true Lemurs carry their offspring. The young one born on the 24th of March, 1884, proved to be a female, and was of the same brown colour as its mother. On the 3rd of April in the following year the second young one was born, which was a male, and at the time of birth it was of the black hue of its father. Each of these young ones was carried lying nearly across the abdomen of its mother, with its tail passed round her, and thus on to its neck, so as to afford a firm attachment; and it is believed that, at least in the wild state, the young are at a later period carried on their mother's back."*

* *The Royal Natural History*, vol. 1., p. 215.

Of a female of this species in the Regent's Park Gardens, Mr. A. D. Bartlett says: "I imagine from her voice, which is a kind of hoarse croaking bark, rapidly and frequently repeated, that the male would probably produce a louder and more powerful note, since the voice of the male of an allied species is certainly astonishingly powerful and can be heard at a great distance; while the voice of the female, although loud and discordant, is comparatively weak. Nevertheless it is a very unpleasant series of loud, grunting, grating barks, sufficient to alarm a nervous traveller, should he be in the forest at dark and unacquainted with the size and nature of the animal producing these loud and dismal sounds."*

4. **The Mongoose Lemur** (*Lemur mongoz*, L.). This Lemur has a long head, flat forehead, and large canine teeth. It is of a general reddish-grey colour, but the crown of the head and the face and chin are black; and there is a streak of the same colour up the forehead. The cheeks and the side of the forehead are iron-grey, and this and its black nose distinguish it. It carries its long bushy tail well erect as it moves about, jumping on all-fours from place to place, and grunts with pleasure when fed and noticed.

5—10. As will be seen by referring to the Tabular List, M. Grandidier distinguishes six distinct varieties of this species besides the type. These are named according to the colouring of the fur about the face and neck, as (5) the **Collared Lemur** (*Lemur mongoz*, var. *collaris*), (6) the **Black-fronted Lemur** (*L. mongoz*, var. *nigrifrons*, Geoff.), (7) the **White-fronted Lemur** (*L. mongoz*, var. *albifrons*), (8) the **Red-fronted Lemur** (*L. mongoz*, var. *rufifrons*, Benn.), (9) the **Ashy-crowned Lemur** (*L. mongoz*, var. *cinereiceps*), and (10) the **Red-footed Lemur** (*L. mongoz*, var. *rufipes*). Of these there is not much to remark upon, as in habits and disposition they appear to differ little, if in anything, from the type species. Several of the White-fronted Lemurs have been brought to England from time to time, and have been kept in the Regent's Park Zoological Gardens from as long ago as 1830. Their habits are simple enough. They often exhibit great vivacity, and are much given to leaping from one object to another, in which they are aided by the pad-like structure of the hands and feet. One of these Lemurs was sent to the great naturalist Buffon as a present and lived with him for several years. It was very good-natured and tame and full of fun while still young, but became cross and vicious, as well as very thievish, when old. It eventually died from the effects of cold, from which it always suffered much.†

11—14. Of the four following species of Lemur I have been unable to obtain any particulars and can only give their names, which are as follows:—(11) the **Intensely Black Lemur** (*Lemur nigerimus*), (12) the **White-handed Lemur** (*L. albianus*), (13) the **Crowned Lemur** (*L. coronatus*, Gray), and (14) the **Red-bellied Lemur** (*L. rubriventer*, I.G. St.-Hil.).

15. **The Ring-tailed Lemur** (*Lemur catta*, L.). This pretty species is perhaps the best-known of all the Lemuridæ from its handsomely marked tail, which is ringed with black and white bands, thus clearly distinguishing it from all the other species of the family or of the sub-order.

* *Proc. Zool. Soc.* 1862; Dec. 9.

† See *Cassell's Natural History* (new ed.); vol. I., p. 228.

It appears to bear a sea-voyage and transportation to a distance more easily than many of the Lemurs, and is therefore frequently seen in Mauritius and Bourbon, as well as in still more distant places, where it is commonly known by the rather absurd name of the "Madagascar Cat"! M. Pollen says of it: "This species, so characteristic by its strongly marked colours, inhabits the south-western forests,* and I have never observed it in other parts of the island. The specimens I obtained came from Fiherenana and the Mahafaly and Mäsiköro provinces; but, according to Sganzin, it is also found in Anösy, on the south-east coast. These Lemurs, like their congeners, live together in considerable numbers and are hardly distinguishable from them in habits. They are extremely active and leap with great grace and agility from tree to tree. The little plaintive cry which they utter at intervals resembles that of our domestic cat. In captivity this Lemur soon becomes attached to its owner. One I saw on board the corvette *Duplex* was quite one of the family and loved to play with the dog and the cabin-boys. This gentle animal protected in a special manner a little monkey, taking care of it like an infant, licking it and nursing it in its arms. It leaped with grace and astonishing agility for an adult animal; it had the habit of frequently stretching out its arms and fixing its eyes on the sun."

The Rev. G. A. Shaw says of the Ring-tailed Lemur:† "As far as my experience of seven years goes, these Lemurs are found only in the south and south-western borders of the Betsiléo province of Madagascar. A forest extends along the whole eastern side of this region, fringing the table-land, and covering all the slopes down into the low land bordering the sea; but nowhere in these forests have the Ring-tailed Lemurs been found. Their habitat in the south and south-west is among the rocks, over which they can easily travel, where it is impossible for the people, although bare footed, to follow. An examination of their hands will show that they are pre-eminently adapted for this kind of locomotion. The palms are long, smooth, level, and leather-like, and enable the animal to find a firm footing on the slippery wet rocks, much on the same principle as that which enables the fly to walk up a pane of glass. The thumbs on the hinder hands are very much smaller in proportion than in the Lemurs inhabiting the forests, which depend upon their grasping power for their means of progression. These latter spring from tree to tree, and very rarely, if ever, touch the ground, except in search of water. Hence the Ring-tailed Lemurs are an exception to the general habits of the Lemuridæ, in that they are not arboreal. There are very few trees near their district, and those that do grow there are very stunted and bushy.

"These Lemurs are provided with two long canine teeth or fangs in the upper jaw, those of the male being considerably longer than those of the female. These they use to take away the outer coating of the fruit of the prickly-pear, which is full of fine spines and constitutes their chief article of winter food, and which grows abundantly in the crevices and around the foot of the rocks. Their summer food consists of different kinds of wild figs and bananas. Their fangs are doubtless used as

* See, however, Mr. Shaw's statement as to their habitat given in the following paragraph.

† "Notes on Four Species of Lemur brought alive to England in 1879;" *Proc. Zool. Soc.* 1879; p. 132.

weapons of self-defence, although when fighting, I have noticed that they depend a great deal upon their hands, with which they scratch and strike. I have seen the male put a dog larger than itself to the rout in this way.

"They are very easily tamed, and in captivity will eat almost any kind of fruit, but do not like meat in any form. [They are, however, extremely fond of spiders.] By a little care they can be induced to feed upon cooked rice, upon which they thrive. In their natural state they do not drink, as is proved not only from the native accounts, but also by the fact that for the first month or two after being caught, and while living on bananas, they do not drink. It is curious that all the species of Lemur living on the west, including the two kinds of White Lemur, appear to subsist without water, while all those on the east invariably drink at their meals."

The mammae or teats of this species are two in number and are placed near the armpits. They have usually but one, or at most two, young ones at a birth, the period of gestation being about a hundred and ten days. The young animal is born almost naked and without fur. "They cling on to their mother's fur, and, holding on to that over her stomach and abdomen, they lie across her, so that when she draws up her legs, she either hides the little one effectually, or it may be seen hairless in the folds of the mother's groin. After a while, and as the young Lemur becomes better clothed and stronger, it leaves this snug and warm retreat and crawls up on to the mother's back and seizes her fur, holding on with such tenacity that she can jump and bound about without unseating her little burden."

There is one point of great interest in the throat of this Lemur, for it has a small laryngeal pouch, resembling the great one in the throat of the American Monkeys called Howlers; while the hyoid bone resembles that of the Carnivora rather than that of the Monkeys. It appears therefore as a kind of link between the two orders.

Two of the smaller species of Lemuridæ are classed in a distinct genus from the true Lemurs and are known as *Hapalemur* (*H. simus* and *H. griseus*), or 'Gentle Lemurs' (Gr. *hapalos*, soft, tender).

16. **The Broad-nosed Gentle Lemur** (*Hapalemur simus*, Gray). A specimen of this animal was brought alive to England in 1878 by the Rev. G. A. Shaw, and of it he gives the following particulars:—

"This one was caught and chained up last January. It came from the higher-level forests on the eastern side of the Betsileo, among the bamboos, on which it appears in a great measure to subsist. Its teeth are different from those of any other kind of Lemur with which I am acquainted. It has the few, sharp, outwardly inclined teeth in the lower jaw in the front common to all Lemurs, and which they use as scrapers, and not to bite with. Besides these, nearly all its teeth are serrated cutting-teeth, and are arranged, not in opposition, but so as mutually to intersect. In this respect it is admirably accommodated to suit the country in which it lives, since with the greatest facility it can bite off the young shoots of the bamboo, and mince up a whole handful of grass blades and stalks at once, each bite cutting clean like a pair of scissors. Like very many grass-eating animals, it seems to feed nearly all day long. For several months I had this one chained on the lawn, and it scarcely

ceased gathering the grass within its reach and eating it from morning till evening. It is also unlike other Lemurs in its dislike of fruit. I have tempted it with very many different kinds of berries and fruits growing in the forest, but it would not touch any of them. It is very fond of cooked meat and also of sugar-cane; and it was owing to its desire for sugar that it has been coaxed to eat cooked rice, which is now its staple food. It is furnished with a remarkably broad pad on each of the hinder thumbs, by means of which it is enabled to grasp firmly even the smallest surfaces. Unlike most other Lemurs, its head is very round, although the female has a somewhat more pointed snout than the specimen now in the Society's Gardens. Its cry is very peculiar, at times resembling the quack of a duck, at other times loud and piercing. Its tail is long, but not very bushy."

17. **The Grey Gentle Lemur** (*Hapalemur griseus*, Is. Geof. St.-Hil.; *Lemur griseus*, Geoff.; *Hapalemur griseifrons*, Is. Geof. St.-Hil.). Of this species M. Pollen gives an interesting account, which I shall translate and quote in full; it is as follows:—

"This little species, which the north-western Malagasy call *Bòkombòlo*, prefers the bamboo woods for its abode. I have found it at some distance from the coast, on the banks of the River Ambasóana. The natives had so often spoken to me of these animals that I could not resist the desire to go and observe them myself. The Tankarana, who only could guide me to the place, however, made a thousand objections, saying that it would be very difficult for a European to hunt in the bamboo woods; that he would tear his clothes at every step; that he would be constantly wounded by the spines and sharp-pointed leaves of the bamboos; that it was very far to go, and that I should fall ill on the way; in short, that the road would be impracticable for a foreigner. But I at last succeeded, by giving them small presents, in persuading them to conduct me to the places frequented by these animals. I set out on Nov. 2, 1864, at early morning, accompanied by two Tankarana of Ambátorángana, for Tánimalándy, a region where one finds forests of bamboo inhabited by these little Lemurs.* After a difficult march of several hours we reached a dense bamboo wood, where I was able to kill several of these animals. I was obliged to crawl along on the ground, a style of travelling which gave me frightful pain in the loins, besides getting frequently wounded with the sharp points of the bamboo leaves.

"The Hapalemurs rest during the whole of the daytime, sleeping on the highest stems of the bamboos, their backs curved, with their heads placed between the thighs, and their tails over the back. They are entirely nocturnal in their habits, which, however, does not prevent them perceiving any enemy and saving themselves at the approach of the hunter. Their food consists of the young leaves of the bamboo, at least I have always found their stomachs filled with this substance. These animals are very sluggish during the day, but during the night they display an agility and activity almost incredible. Their cry consists of a little grunt, like that of a pig, but much less distinct. It appears that this species bears its young in the months of December and January. I

* Part of their native name, *bolo*=*volo*, bamboo, apparently refers to their habitat; the first portion of it, *boko* or *bokony*, is obscure.

once kept one of these little animals for some months in captivity. I fed him on bananas, mangoes, and cooked rice, but he would not touch the rice unless forced to do so by hunger. He had the bad habit of gnawing his tail, as monkeys do when kept in confinement. When any one held up his finger at him, he was very angry, showing his teeth and setting up a sudden grunting."

The general tint of the upper portion of the body of *Hapalemur griseus* is brown, passing, in some examples, to yellowish, in others to red, and brighter below the head than elsewhere; the tinting of the under parts of the body is grey, as denoted by its specific name.

18. **The Weasel-Lemur** (*Lepilemur mustelinus*, Is. Geof. St.-Hil., 1854). The genus to which this animal belongs is characterized by a total want of incisors in the upper jaw. This species, to which the natives of the north-western parts of Madagascar give the name of *Fitiliky*, presents much similarity, as regards both form and habitat, to the *Chirogaleus furcifer*, yet to be described, since it inhabits the forests both of the western and eastern sides of the island, it is nocturnal and lives in hollow trees, and is about two feet in length, the tail being quite the longer half of its whole dimensions. It is often seen in company with the *Chirogaleus*. These animals are said to be more stupid and sluggish than the Lemur just described, the *Bokombolo*, and the Malagasy assured M. Pollen that they sometimes kill them during the daytime by strokes of a stick, and that they eat their flesh. Their food consists of the flowers, buds, and leaves of trees, as well as certain fruits.

19—21. The second species of the genus *Lepilemur*, *L. ruficaudatus*, is described by M. Grandidier as including three varieties: (1) the **Red-tailed Weasel-Lemur** (type), (2) the **Pale-tailed Weasel-Lemur** (*L. ruficaudatus*, var. *pallidicauda*), and (3) the **Ridged Weasel-Lemur** (*L. ruficaudatus*, var. *dorsalis*). In habits they probably differ but little from the first species described.

The six remaining species of the Lemuridæ include the smallest and prettiest of the Lemuroid animals. Until recently they were all included in one genus, *Chirogaleus** (the *Microcebus* of some naturalists), but MM. Milne-Edwards and Grandidier have more recently seen reason to form two new genera for two of them, which they have named *Phaner* and *Mirza* respectively, as will be seen. These six species have long bushy tails, and are somewhat squirrel-like in appearance. But a very interesting fact about them is that they all hibernate, like our English Hedgehogs, Dormice, and Bats, as well as many reptiles and not a few insects. At the approach of the cooler season of the year, having previously stored up in their bodies, especially in their long tails, a supply of fat, they retire to their nests in hollow trees, and curling themselves snugly up, sleep away several weeks until the hot weather returns again. The fat is slowly absorbed; and the blood sent out of the heart is not entirely the bright scarlet and oxygenated fluid of ordinary times, but is largely mixed with the impure darker blood from the veins; so that when the animal arouses from its sleep, it is thin and lean, and its tail is miserably attenuated. They all appear to be nocturnal in their habits, and the eyes are large and beauti-

* *Xeir*, hand; *gale*, weasel.

fully adapted for seeing in the twilight, and they pounce upon their prey, insects and even small birds, with wonderful celerity.

22. **The Fork-crowned Mouse-Lemur or Cheirogale** (*Phaner furcifer*, Grand.; *Cheirogaleus furcifer*, Is. Geof. St.-Hil.; *Lepilemur furcifer*, G. R. Gray;* *Microcebus furcifer*, St.-G. Mivart.† This pretty species is found in abundance in the forests of the western parts of Madagascar, and it also appears to inhabit the eastern side of the island, whence specimens have been sent to Europe. Its total length is from 24 to 25 inches, of which the tail is from 14 to 15 inches. The lower parts of the body are white, passing into reddish yellow; while the general tint of the rest of the body is yellowish or reddish-grey, passing insensibly into black. There is a black or dark-brown line on the back, along the spine, and this, passing over the head, divides or forks in two bands, one over each eyebrow, from which peculiarity comes the name of the species, and the end of the tail is blackish; the ears are bare, and the eyes large and beautiful.

These little animals are accustomed to go out from their hiding-places only by night, for they sleep throughout the day; and for security they prefer hollow trees, having two openings, for their nests. It often happens that these hollows are occupied at the same time by bees, in which case, the *Valovy*, by which name this Lemur is known to the Malagasy, partition off the part occupied by these insects from their own nest by a little fence of straw and dry leaves. The natives say that this Lemur prefers the society of the bees, in order to steal their honey, of which it is very fond. Whatever may be its liking for honey, it has the means of biting hard fruit, for it has large middle front teeth, and also strong upper first molars. As a whole, the teeth are in number the same as in the first division of the American Monkeys. Besides its name of *Valovy*, by which this Lemur is known among the Tankarana at the extreme north of Madagascar, it is also called *Tantaralèla* by the Sàkalàva, on the western side of the island. It is said to hibernate in the hollow trees, in which it sleeps by day.

M. Pollen says: "I have observed these graceful little Lemurs at night, but it is extremely difficult to obtain one of them. They are much more nimble and agile than the ordinary Lemurs, and they make astonishing leaps. Their cries, which they utter continually during the night, are very abrupt and resemble the syllables *ka-ka-ku-ku*, having some resemblance to the piercing cries of the Guinea-fowl. As I have already said, the hunting of these *Valovy* is very difficult. One evening I determined to set out by moonlight in pursuit of them. To effect this, I set off with my Tankarana servant Zojé, before twilight, towards a clearing in the forest, near an encampment. My attendant made expeditions like this very unwillingly, because these places abound with mosquitoes, whose stings are followed by tormenting irritation. As for myself, I was somewhat fortified against their attacks by a thick overcoat, which I was accustomed to wear on such occasions, while the Malagasy, with their thin and scanty clothing, are quite unprotected against these plagues. On our way my trusty servant kept on saying: 'It is bad hunting *Valovy*, Sir, for there are plenty of mosquitoes.' There

* *Proc. Zool. Soc.*, 1863; p. 145. † *Ibid.* 1864; p. 621.

are undoubtedly plenty of mosquitoes in such localities, but as I was very desirous to obtain one of these animals and to study their habits, what he said did not cause me to turn back.

"The moon was already shining brightly when we arrived at the place, where we remained, standing under a tree, for an hour or more before one of the Lemurs I wanted made its appearance. At first I could only hear their piercing cries above my head, without being able to distinguish the animals from which the noise proceeded. My native guide, who was standing, stamping his feet like a horse from the torture of the mosquito bites, suddenly said to me: 'I see them!' What he saw, however, was only the tail of the noisy crier, which I had also noticed for some minutes, taking it all the while for the stem of a liana swaying to and fro in the wind, and so had not paid much attention to it. But I had hardly prepared to seize it, when the animal, perceiving my movements, leaped to a neighbouring tree. Following it as closely as I could with my eyes, I presently lost sight of it, and all I could do was to fire into a clump of foliage, into which I saw it disappear. Hearing my native exclaim '*ambàny*!' ('on the ground!') I felt sure I had killed one, as was indeed the case. But as the tormenting stings of the mosquitoes prevented me from remaining quiet for more than an hour in this unpleasant style of hunting, I did not obtain another of these animals, although I frequently went to the same spot in hope of shooting a few more of them."

23. **Coquerel's Mouse-Lemur or Cheirogale** (*Mirza Coquerelii*-Grand.; *Cheirogale Coquerelii*, Is. Geof. St.-Hil.; *Microcebus Coquerelii*, St.-G. Mivart). "This species," says M. Pollen, "new to science, was discovered by us in the north-western parts of Madagascar. I have dedicated it to my excellent friend Dr. Charles Coquerel, since deceased, in remembrance of the kindness he showed to me during my stay in Réunion. This little animal inhabits the most impenetrable forests. It is accustomed to make its nest, of a foot and a half in diameter, of straw and twigs and dead leaves, in which it reposes during the day. It only goes out towards the evening, in order to search for food, which is the same as that of the Fork-crowned Lemur just described, and of *Lepilemur mustelinus*, that is to say, live insects and fruit. The unique specimen I was able to procure had been killed in the province of Kongony, in the neighbourhood of the Bay of Ampasindava, where it is known by the natives under the name of *Sietui* (?).

24. **The Brown Mouse-Lemur, or Larger (Milius's) Cheirogale** (*Cheirogaleus major*=*Milii*, Geof.). "M. Milius, who was Governor of the Island of Réunion in 1821, gave a pair of little Lemuroids, each being about nine inches in length, with a long tail, to the Jardin des Plantes, at Paris. They lived there for some time, and used to get out of their cages at night and wander about the rooms and places where the animals were confined. At dusk, after having been very quiet all day, they got up and stood well on their hind legs, and began to jump to and fro like mad creatures, and they kept it up when quite dark, for they could be heard rushing about amongst a crowd of cages inhabited by other animals; but if the least light were admitted, they darted through a small hole which led to their own cage, and were there again

in the twinkling of an eye. They had beautiful silky fawn-coloured fur, and rolled themselves in balls during the daytime, for the light seemed to be specially painful to them. In their captivity they were fed on bread, biscuits, and fruit.”*

The Lemur above described appears to be the same species as that which was brought (with others) alive to England in 1878 by the Rev. G. A. Shaw,† and of which he gives the following particulars:—

“This small and highly interesting animal was caught in November, 1877, since which time it has lived in a small box, and has been allowed a little exercise about the room each night. It is nocturnal in its habits, and its food consists of fruits and possibly honey; of this there is abundance in the forests on the eastern side of Bétsiléo, from the lower parts of which the animal was brought. The specimen is full-grown, about seven or eight inches in length, has a pointed snout and very prominent eyes, large ears, and round rat-like tail, which is not prehensile. It is of a brownish-grey colour, approaching to white on the under parts. Its four legs are almost equal in length, thus rendering it difficult for this Lemur to leap any considerable distance, as the majority of species can. It runs on all-fours, but sits up to eat, holding its food in the fore hands. I fancy that in the winter months in its natural state it hibernates, because in the beginning of last winter (that is, in June), after several nights’ good exercise, during which time it had the opportunity of eating as much banana as it chose to take, I was astonished in the evening, on opening its box, to find it still asleep and quite cold to the touch. At first I thought it was dead, but by holding it near a fire and rubbing it, it gradually awoke, and when thoroughly warmed, appeared none the worse in health. This happened two or three times, and without any apparent cause, as there was no ill-health, nor was the weather particularly cold. From this fact, and from the sudden and unnatural enlargement of the tail, which unfortunately still continues, I presume, had it been in its native forests, it would, under the same circumstances, have slept through the winter. It makes a nest of leaves or dry grass by carefully scooping a hollow big enough to contain itself, and then, after getting in, covering itself with the loose leaves or grass. The native accounts also confirm my opinion with regard to its hibernation; they say that it hides in the hollow trees in the winter.

“It appears to be a very uncommon animal, even in Madagascar, as this is the only specimen I have been able to obtain, although I kept a man in the forest for two months seeking for one, after I had obtained this one. Of course the fact of their sleeping all day and only feeding at night adds to the difficulty of catching them. It was easily tamed, and proved very affectionate; it comes when called by name, and enjoys being fondled and rubbed.”‡

25—28.—Four other species of these small and pretty Mouse-Lemurs or Cheirogales are given by M. Grandidier in his list of Madagascar Mammals, namely, the **Medium Cheirogale** (*Cheirogale medius*, Is. Geof.

* *Cassell's Nat. Hist.* (new ed.), vol. i., p. 235.

† Unless indeed the species described by M. Milius is identical with Coquerel's Lemur (23), or is one of the other Cheirogales.

‡ *Proc. Zool. Soc.* 1879, p. 132.

St.-Hil.=*Samati*), the **Dwarf Cheirogale** (*C. minor*=*murinus et pusillus*=*nain*), the **Myoxine Cheirogale** (*C. myoxinus*), and the **Hairy Cheirogale** (*C. trichotis*). Of these little appears to be known very definitely as regards each species, and I am a little doubtful whether the following description by Mr. G. A. Shaw is that of the Medium or of the Dwarf Cheirogale. On the whole, it seems most likely to refer to the latter. Mr. Shaw says:—

“This is another species of nocturnal animal, and is the most diminutive Lemur with which I have become acquainted. They inhabit a belt of forest-land stretching from the eastern forest into the heart of Betsiléo, a few miles north of Fianarantsoa, where they are tolerably abundant. They live on the tops of the highest trees, choosing invariably the smallest branches, where they collect a quantity of dried leaves, and make what, from below, looks like a bird’s nest.* So close is the resemblance that it requires good eyes to distinguish one from the other.

“Their food consists of fruit and insects and most probably honey. I have frequently seen them catching the flies that have entered their cage for the honey; and I have supplied them with moths and butter-flies, which they have devoured with avidity. They are extremely shy and wild. Although I have had between thirty and forty caged at different times, I have never succeeded in taming one. They are also very quarrelsome and fight very fiercely, uttering a most piercing penetrating sound, somewhat resembling a very shrill whistle.

“Their teeth are very minute, but exceedingly sharp; and when they bite, they hold so tenaciously that it requires a good shake and knock to make them let go. These Lemurs can leap better than the Brown Mouse-Lemurs, but still their usual mode of progression is on all-fours; and when running up any branches which they can grasp with their hands, they are very nimble indeed, very much more so than when on the ground. They are very strong on their hind legs and hands. I have often seen them swing themselves down from their perch holding by the hinder hands, grasp their food in the two fore hands, and then gradually draw themselves back again into their former position on the perch. In this they are assisted by the tail, but only as a balance, and not as an additional grasping member. And although the tail is of considerable assistance when stretching out from one branch to another, by being partly twisted round the branch, it is certainly not prehensile in the same way as some monkeys’ tails are. Their eyes are large and brilliant, their ears large, and their hands beautifully perfect, with ordinary-sized nails on each finger, except the second finger of the hind hands, which is furnished with the long scratching claw.

“They bring forth two, and sometimes three, at a birth; but I have had none breed in captivity.”†

This dwarf species is sometimes called the Madagascar Rat, for it is only four inches long, with a tail of six inches. Not only is it interesting from its minute size, but it is remarkable for its very resplendent eyes. “The *tapetum*, or coloured tinsel-looking glaring structure situated deeply in the eyes, is so large, and the eye admits so much light at dusk, that quite an unnatural brilliancy is produced.”

* One account says that these nests are like that of the Crow, and consist of interlaced twigs, in the midst of which there is a depression, with a bed of hair for the young.

† *Proc. Zool. Soc.* 1879, p. 132.

"One of the Cheirogales has a black circle round the eyes, and is hence called the Spectacled Cheirogale; and it is interesting as being one of the species whose summer sleep has been noticed, and because it has an extremely important tail. This tail thickens at the root, and tapers towards the end, not being cylindrical throughout, and it is the tail which gets grossly fat and finally excessively thin."

It may be noticed, in conclusion, that the Cheirogales are the only Madagascar Lemuroids which are closely allied, as regards structure and form, to the African kinds. They have indeed much in common with the Galagos of Africa, and can be easily distinguished from the Propithecus, Indris, and Avahy Lemuroids. In both groups there is the long heel- or ankle-bone, they have the same number of teeth, and in both genera there are four teats or mammæ, two on the breast, and two on the groin. They have no furry ruff or ear-tufts, and their brain is more triangular in shape than that of any other of the Lemuroida.

Before leaving this family of living Lemurs, it may be mentioned here that recent research in Madagascar has brought to light the remains of an extinct species of Lemuroid animal of much larger size than any living species. At present this creature, which appears to have been about three times the size of the largest living Lemur, is only known to us by an imperfect skull and lower jaw. These remains were obtained by Mr. J. T. Last in a marsh at Ambólisàtra, near the south-coast, beneath a stratum of white shelly marl about two feet in thickness; they have been determined by Dr. C. J. Forsyth Major to belong to a gigantic form of fossil Lemuroid, related to the extinct genus *Adapis*, as well as to existing Lemuroids. Dr. Major names this new form *Megaladapis madagascariensis*; see ANNUAL XVIII., p. 136.

JAMES SIBREE (ED.).

(To be continued.)

APPENDIX TO CHAPTER IV.—TABULAR ARRANGEMENT OF MALAGASY MAMMALS.

ORDER I.—PRIMATES.

SUB-ORDER LEMUROIDA: LEMUR-LIKE ANIMALS (concluded)

FAMILY LEMUROIDÆ: TRUE LEMURS.

English Name	Scientific Name	Malagasy Names
Variable (or Ruffed) Lemur (type)	<i>Lemur varius</i> (typicus, Geoff.)	Vàrikàdana, Betsim.
Red Lemur	<i>Lemur varius</i> , var. <i>ruber</i>	Varikandana, Betsim.
Macaco or Black Lemur	<i>Lemur macaco</i> (L.); <i>L. niger</i> Geoff.; <i>L. leucomystax</i> (Bartl.)	Akòmba, N. Tanà.
Mongoose-Lemur (type)	<i>Lemur mongos</i> (typicus, L.)	Gidro, Akomba, N.W.

English Name	Scientific Name	Malagasy Names
Collared Mongoose-Lemur	<i>Lemur mongoz</i> , var. <i>collaris</i> (Gray)	Probably all are known by the names Gidro or Akomba
Black-fronted Mongoose-Lemur	<i>Lemur mongoz</i> , var. <i>nigrifrons</i> (Geoff.)	
White-fronted Mongoose-Lemur	<i>Lemur mongoz</i> , var. <i>albifrons</i>	
Red-fronted Mongoose-Lemur	<i>Lemur mongoz</i> , var. <i>rufifrons</i> (Benn.)	
Ashy-crowned Mongoose-Lemur	<i>Lemur mongoz</i> , var. <i>cinereiceps</i>	
Red-footed Mongoose-Lemur	<i>Lemur mongoz</i> , var. <i>rufipes</i>	
Intensely Black Lemur	<i>Lemur nigerrimus</i>	
White-handed Lemur	<i>Lemur albinus</i>	
Crowned Lemur	<i>Lemur coronatus</i> (Gray)	
Red-bellied Lemur	<i>Lemur rubriventer</i> (Is. G. St.-Hil.)	
Ring-tailed Lemur	<i>Lemur catta</i> (L.)	Gidro, Ambòanàla
Broad-nosed Gentle Lemur	<i>Hapallemur simus</i> (Gray)	Vàrikòsy, Sak.
Grey Gentle Lemur	<i>Hapallemur griseus</i> (Is. G. St.-Hil.); <i>Lemur griseus</i> (Geoff.)	Varikösy, Sak., Bòkombólo, N.W.
Ridged Weasel-Lemur	<i>Lepilemur mustelinus</i> (Is. G. St.-Hil.)	Gidro, Fitiliky, N.W.
Red-tailed Weasel-Lemur	<i>Lepilemur ruficaudatus</i> (typicus)	Boéngé, Sak.
Pale-tailed Weasel-Lemur	<i>Lepilemur ruficaudatus</i> , var. <i>pallidicauda</i>	
Ridged Weasel-Lemur	<i>Lepilemur ruficaudatus</i> , var. <i>dorsalis</i>	
Fork-crowned Mouse-Lemur or Cheirogale	<i>Phaner furcifer</i> (Grand.); <i>Cheirogaleus furcifer</i> (Is. G. St.-Hil.)	Valövy, Tank., Tantaròalèla. Sak., Tàntana, Honàndro
Coquerel's Mouse-Lemur or Cheirogale	<i>Mirza Coquerelii</i> (Grand.); <i>Cheirogaleus Coquerelii</i> (Is. G. St.-Hil.)	Vàrika, Sisiba, Tsitsihy, N.W.
Larger (Milus's) Cheirogale (Brown Mouse-Lemur)	<i>Cheirogaleus major</i> (=Milii), (Geoff.)	Tsidy, Tsidika, Valövy
Medium Cheirogale Lemur	<i>Cheirogaleus medius</i> (Is. G. St.-Hil.)	
Dwarf Cheirogale Lemur	<i>Cheirogaleus minor</i> (=murinus et pusillus)	Sisiba, Tsitsihy
Myoxine Cheirogale Lemur	<i>Cheirogaleus myoxinus</i>	Tsitsihy, Sak.
Hairy Cheirogale Lemur	<i>Cheirogaleus trichotis</i>	

FAMILY CHEIROMYIDÆ: AYEAYES.

Aye-aye	<i>Cheiromys madagascariensis</i>	Haihay, Aiay, Ahay (Betsim.)
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Note.—The following names are also given to certain species of Lemur (or Lemuroidea): Bàndro, Hàlobè, Hàlokotàhina, Soamira, and Tsidikinijozòro, but I cannot identify them by their scientific names. Can any one give me this information?—J.S. (ED.)



OHABOLANA,

OR

WIT AND WISDOM OF THE HOVA OF MADAGASCAR, PART II.

(Continued from ANNUAL XVIII.)*

III. Righteousness and Wickedness (concluded).

FAULTS AND IMPERFECTIONS.†

136.—*Tsy misy mahita kilema momba tena.*
None sees his own blemishes.

137.—*Aza manafin-kilema momba tena.*
Don't hide your own faults.

138.—*Ny vilany nandrahoana no efa nipoaka.*
It's the pot that boiled (the meat) that's burst.

139.—*Ny lalambe no miolika, ny tanim-bomanga.*

The road winds about because of the sweet-potato fields.

An excuse or explanation. Paths are turned about in all directions according to the caprice of the husbandman.

140.—*Izaho no lavo niherika anao.*

I stumbled because of looking back at you.

141.—*Akondro nojinjana hariva aho : ka raha tsy malazon' ny alina aza, mantsasaky ny alina.*

I'm a banana-tree cut down in the evening : if I'm not withered by night, I shall be by midnight.

142.—*Tsy ny saonjo iray lohasaka, ka tsy ilaozan' izay mamarara.*
Like a field of arum ; there's sure to be some speckled.

There's sure to be some black sheep amongst many others.

143.—*Lambo soso-nify ka nentim-paharazana.*

A hog with a double tooth : it came from his ancestors.

Lit. carried by, or brought from. Not my fault, but my ancestors'.

144.—*Manasa lamba be tseroka ; na madio aza, mangarahara.*

Washing a very dirty dress ; though it's clean, it becomes full of holes.

There are faults anyhow.

145.—*Ny akoho novonoina no mody latsa, ary ny atao no tonga adidy.*

The fowl killed becomes a reproach, and the thing done blameworthy.

146.—*'Veloma' tsy mba adidy, sakafo lany tsy mba andraikitra.*

'May you live' isn't blame, a meal eaten isn't guilt.

147.—*Tsorakazo noladinim-bitsika : lofidofiny foana, fa ny tenany be efa marazoka.*

A twig climbed upon by ants : they bend it little, but its stem is pretty.

Lit. its bulk, or the body of it, is well formed. A little evil, but much good.

148.—*Sotroben-dRatsiavanga : sady fikapohana akoho no fangaroana anana.*

Ratsiavanga's big spoon : it beats the fowls and stirs the greens.

149.—*Miandry ondry zato, miambina omby arivo ; ka tsy ilaozan' izay mania.*

Watching a hundred sheep, minding a thousand oxen ; some are sure to go astray.

Compare Nos. 1206-1208.

* For Introduction and first part of these articles, see last ANNUAL, pp. 188-204.

† See also Nos. 219, 227, 447, 448, 1626-1668.

150. — *Ny tsiny toy ny rivotra : mikasika ny tena, fa tsy hita tarehy.*
Blame is like the wind : felt but not seen.

Lit. touches the body, but not seen as to its face.

151. — *Tandra vadin-koditra.*

A mole is wife to the skin.

Said of natural defects or of seemingly inseparable moral ones.

152. — *Raha tsy manao be fandro, manao be tsiny.*

Not much blame, yet many faults.

153. — *Toko tapaka, vilany mitongilana ; ka izay tsy mety arenina.*

A broken trivet, a pot on one side ; what's wrong can be put right.

154. — *Sabora raiki-molaly : na manitra aza, mangidy.*

Suet covered with soot : although it smells sweet, it's bitter.

Applied to a person who may have changed for the better. Though he does good now, his bad deeds are remembered and he is more or less *mangidy hōditra*, 'of a bitter tasting skin,' i.e., distasteful, offensive.

155. — *Tongolo maty taho, ka be fofona amin' ny tany.*

Onions with dead stalks cause a great smell in the ground.

Bad deeds emit an offensive odour.

156. — *Aza atao famaky manan-tsiny amin' izay kiakiake' akoho.*

Don't blame the axe when the fowls cry out.

The instrument of death is not to blame, but the one who uses it.

157. — *Sobiky rindra notampenan-kerana, ka ny azy fanahy iniany.*

A thin rush basket with a thick rush top : it was what he intended.

So he can't complain of its grotesque appearance.

158. — *Ny halavoana tsy mahalehibe.*

Falling hinders growth.

159. — *Tsontsam-paika ka matim-bela.*

To miss the mark and suffer abuse.

IV.—Love and Friendship.*

UNION AND COMPANIONSHIP.

160. — *Ny fihavanana tsy azo vidina.*

Friendship cannot be bought.

161. — *Ny fihavanana tahaka ny volon-kotona : hatonina, manalavitra ; halavirina, manatona.*

Friendship is like the pond-weed : if you come near, it goes away ; it you go away, it comes near.

162. — *Ny fihavanana toy ny fasam-bazimba, ka izay mandrava aloha no kely ila.*

Friendship is like a Vazimba's tomb, and the first who destroys it gets small on one side.

Also said to be "like the nest of the Tufted Umbre, and the first who destroys it becomes a leper." Compare No. 73.

163. — *Ny fihavanana hoatra ny famoriana tain' omby : ka izay maha-vezivezy no mahafeno harona aloha.*

Getting friends is like gathering cow-dung : the more you go about, the more you get.

Lit. whoso can go hither and thither fills his basket first. Cow-dung is used for fuel, particularly to heat and split the rocks, when large slabs are wanted for tombs.

* See also Nos. 587, 695, 2034, 2206.

164.— *Ny fihavanana hoatra ny landy : maty isika, ifonosana ; velona itafiana, ka ny madilana arahim-panondro.*

Friendship is like silk : if we are dead, it is wrapped around us ; living, we wear it ; and the thin is followed by the forefinger.

I.e. to add to and improve it, as the weaver does with the forefinger and thumb the thin portion of the silk she is spinning. True friendship therefore should be strengthened. Compare Nos. 195, 213, 414.

165.— *Ny fihavanana hoatra ny jiafotsy : raha vao, mikasaosaoka, raha lonta, misy romoromony.*

Friendship is like a stiff cloth : when new, it rustles (nicely), but when old, it is full of rents.

A tit-bit for the pessimists. The *jiafotsy* is a coarse rough cloth made from the leaves of the *Rofia* palm. Being stiff, it does not readily adapt itself to the person of the wearer, but soon becomes limp and is then the more readily spoiled.

166.— *Ny fihavanana toy ny raty : raha henjanina, tapaka ; ary raha ketrahitra, miboraka.*

Friendship is like a bad rope : if pulled tightly, it breaks ; if pulled lightly, it comes undone.

Raty is the dry leaf of a kind of pandanus, made into a rope.

167.— *Fihavanana' ny Mamoladaky : tsy mihavana roa taona.*

Friendship of the Hen-pecked : it doesn't last two years.

The *Mamoladaky* are a tribe west of the Capital, who are said to be governed by their wives, as the name implies.

168.— *Ny fihavanana aza ataonao toy ny jiafotsy : intelo asampina, ka mievotra hiany.*

Don't let your friendship be like stiff cloth : though thrice thrown over the shoulder, it still slips off.

Compare No. 265.

169.— *Ny ahiahy tsy ihavanana.*

Distrust hinders friendship.

170.— *Maloiloim-pihavanana va hianao ?*

Are you sick of friendship ?

171.— *Aleo very tsikalakalan-karena toy izay very tsikalakalam-pihavanana.*

Better lose a little money than a little friendship.

172.— *Ny tsikalakalan-karena manam-pahalaniana, fa ny tsikalakalam-pihavanana tsy manam-pahalaniana.*

The little things and acts which preserve wealth fail, but those which preserve friendship fail not.

173.— *Toy ny jaka : tsy hanin-kahavoky, fa nofon-kena mitam-pihavanana*

It is like the *jaka* : not enough to satisfy, but enough to retain friendship.

Lit. *not food to fill, but meat to hold fast friendship.* The *jaka* is a piece of meat presented by friends to one another at the Annual New Year's feast called the *Fandroana*. Compare No. 1337.

174.— *Ny voky tsy mahaleo ny tsaroana.*

A good belly-full doesn't equal a kind remembrance.

175.— *Fitia mifamaly mahatsara ny fihavanana.*

Love returned promotes friendship.

176.— *Fitia tsy mivaly mahafohifohy saina.*

Love not returned hinders friendship.

Lit. *makes little, or discourages, the mind.*

177.— *Ny havan-dratsy tsy mahaleo ny sakaiza tiana.*

A bad relative doesn't equal a beloved friend.

The word *havana* is used interchangeably for 'relative' and 'friend.'

178.—*Tantanam-by sy tsofa vy : havana mpanjary havana.*

An iron hammer and an iron file : one friend makes another.

Compare Prov. xxvii. 17.

179.—*Tsy misy tombo sy hala ; fa ny iray vy nahitana, ary ny iray angady nananana.*

There is no difference ; for one is the iron by which it was found, and the other the spade by which it was obtained.

I.e. wealth or possessions of any kind. Said of mutually helpful friends or relatives.

Lit. excess or hatred is a thing which causes diminution.

180.—*Ny kary aza mitsoka amin' Andriampatsa mahazo, ka indriandra fa ny havana.*

Even the wild-cat that begs of Lord Shrimp gets (something), much more than the friend.

Compare Matt. vii. 11.

181.—*Anao aho ka mora ; fa raha an' olona aho, dia sarotra.*

I am your's, so I am kind ; but if I were another's, I should be hard.

182.—*Atody tsy afindra reny ; ro tsy afindra vilany.*

An egg not removed to another mother ; broth not removed to another pot.

183.—*Mpisakaiza toa mpiombon-dray ; mpifankatia toa mpiombon-dreny.*

Friends are like those who have one father, and lovers like those who have one mother.

I.e. they are brother and sister.

184.—*Raha revom-potaka, rano no manala ; raha revon-teny, vava no manala ; raha revon' alahelo, havana no itarainana.*

Get into the mud, water will remove it ; get into a dispute, the mouth will get you out of it ; be overtaken by sorrow, you can appeal to your friends.

185.—*Faly raha tonga ny rano fanala kenda, raha malahelo ka misy mpanony, raha lavo ka misy mpanarina.*

It's a joy to get water when choking, a comforter when sorrowing, a raiser up when falling.

186.—*Ny fo tsy mandringa, ka raha mandalo aho mitsidika hiany.*

The heart isn't lame, so when I pass, I give a look in.

There may have been a little difference between them, but the heart is still sound and moves its owner to look in on an old friend.

187.—*Izay hajaina tsy ho andriana tsy akory, ary izay manaja tsy ho andevo tsy akory ; ka tsara ny mifanaja.*

Receiving honour won't make you a noble, and giving honour won't make you a slave ; so it is well to honour one another.

Compare No. 1783.

188.—*Zavarin' ny fitia manan-tombo, ka intelo no miarahaba.*

To be too much in love and give a treble salutation.

189.—*Nahoana no ho tia vao ka manary kolokolo ?*

Why do you say you love him, yet begin to desert him ?

Lit. leave, or throw away, the after-growth of rice.

190.—*Tia hiany ka be malo.*

You love, yet are too shy (reserved.).

191.—*Mody tsy tia, koa lefaka.*

You pretend dislike, yet are still obedient.

192.—*Longo ratsy tsy menatra izay hitsoriaka.*

A bad friend is not ashamed of slipping away from his friendship.

193.—*Mifankatia amin' amalona : ka nony sendra tia, nabolilany.*

An eel's friendship : it slips away just when you begin to like it.

194.—*Tsy ny varotra no taloha, fa ny fihavanana.*

It wasn't business that was first, it was friendship.

195.—*Ataovy fitia landihazo : ka ny madilana tentenana, ary ny maito tohizana.*

Love me as you do cotton : add to the thin, and re-join the broken.

Be kind and gentle ever. Be as patient with me as you are with the cotton you are weaving. Compare No. 164.

196.—*Ataovy fihavanam-bava sy tanana : koa raha marary ny tanana, dia mitsoka ny vava, ary raha marary ny vava, dia misafo ny tanana.*

Let your friendship be that of the mouth and the hand : if the hand is hurt, the mouth blows it, and if the mouth is hurt, the hand strokes it.

197.—*Ny havana ataovy toy ny andry ombin' ilay mora : ny aloha (1) voasafosafa, ary ny aoriana (2) voatehatehaka.*

Treat your friends as the kind herdsman does his oxen : the foremost are stroked, and the hindmost patted.

1 Or, *kily* = little. 2 Or, *lehibe* = big.

198.—*Aza atao fitia voangivy, mbola lavitra hiany ka kivy.*

Don't love me as you do the bramble-bush,* and be in fear while yet far off.

199.—*Ataovy fitia voampo : mbola lavitra hiany dia ampoizina.*

Love me as you love the *voampo* : † look out for me while yet far away.

Both these proverbs contain a play on words, as will be readily seen.

200.—*Ataovy fitian-dranon' erika : madinim-piady, fa mahatondra-drano.*

Let your love be like misty rain : little in coming, but flooding the river.

The rains often come down in perfect torrents on the uplands of Madagascar, but these sometimes fall over a limited area and last at most for a few hours of each day. It is not these that usually cause the rivers to rise and overflow their banks, but the misty rains, that are pretty general and often continue for several days together.

Compare No. 1244.

201.—*Aza mitaitay, toy ny fitia tsy ho ela.*

Don't be in a hurry, like love that won't last.

202.—*Aza manao fitia rano trambo : be fihavy, ka mora lasa.*

Don't let your love be like a summer torrent : much at first, but soon gone (or, soon coming and soon going).

Compare Nos. 200, 1244.

203.—*Aza manao fihavana-molotra : tezitra vao mifanatona.*

Don't show lip-love and be angry before you come together.

204.—*Aza manasakaiza vahiny.*

Don't make friends of strangers.

205.—*Aza manao fitia paraky, ka hatreo am-bava no ho miakatra hiany.*

Don't love me as you do tobacco, from the mouth and upwards only.

Tobacco is taken in the form of snuff, not sniffed up by the nostrils, but kept in the mouth between the front teeth and gums. See Chap. vii.

206.—*Aza manao fihavanan' amboa, ka taolana iray no isarahana.*

Don't make it a dog's friendship, to be broken over a bone.

207.—*Aza mandalo lanana misy havana.*

Don't pass by a place where there's a friend.

208.—*Aza manao fitia mifono avona.*

Don't let your love be wrapped up in pride.

* *Voangivy*, a species of *Solanum*. † *Solanum indicum*, L.

209.—*Aza asesiky ny fitia tanteraka, ka tsy mahalala ny ranonorana ho avy.*

Don't be so much in love that you can't tell when the rain is coming.
Compare No. 1752.

210.—*Aza tsy tia olona, fa ny olona no harena.*

Don't dislike people, for they are wealth (i e. the means of getting it).

211.—*Aza kely fisian-kavana loatra.*

Don't have too few friends.

212.—*Aza manao an-tohim-bato amin-kavana.*

Don't be too ready to break with your friends.

213.—*Aza atao fihavanam-bato, ka raha tapaka, tsy azo atohy; fa ataovy fihavanan-dandy, ka raha madilana, azo tohizina.*

Don't let your friendship be as a stone which, if broken, can't be joined together again; but let it be as silk which, if too slender, can be added to.

Compare Nos. 164, 195.

214.—*Aza manao fihavanan-kerana, ka tomany handratra ny sasany.*

Don't have the friendship of rushes and try and injure others.

Lit. cry out; from the sound the papyrus reeds make in rubbing against each other.

215.—*Aza mila lolotr' amalona aman-kavana.*

Don't be on the look-out for a friend's faults.

Lôlotr' amâlona signifies the wriggling of an eel, hence, any crooked way.

216.—*Aza manao sakaiza manody.*

Don't prove a false friend.

Lit. a friend who retaliates, injures.

217.—*Aza atao fitia varavarana, tiana hiany, fa atositosika.*

Don't love me as you do a door, liked, but pushed to and fro.

218.—*Aza ny havana no asian-dratsy, fa tsy ho tratran' ny hafa tsy akory.*

Don't do wrong to a friend or relative, for you won't get another.

219.—*Aza mifanadidy, fa ny havanao tsy mahasora-tena toa voatango.*

Don't blame one another, for your friend can't mark himself like a cucumber.

He isn't really responsible for what he is. He didn't make himself; therefore bear with him. A good specimen of the way in which the natives make a ready but senseless excuse.

220.—*Aza manao arahaba mamba : tsy fitia, fa tahotra.*

Don't salute a crocodile : it isn't love, but fear.

Don't fear me, but love me. Compare No. 810.

221.—*Aza sarotra ihamboana toa havan-dratsy.*

Don't make yourself difficult to boast of, like a good-for-nothing relative (or friend).

222.—*Havako raha misy patsa ; fa raha lany ny patsa, havan-tetezina.*

He is a near relative while there are shrimps (to be had); but when they are done, he is only a distant relative.

The little fresh-water shrimps that abound in the rice-fields and shallow streams are considered a delicacy and eaten as a relish with the rice.

223.—*Raha voatohina ny aty, marary ny afero.*

If the liver is poked, the gall-bladder feels it.

A favourite proverb, like No. 1026.

224.—*Aza manao tsinay homana aty.*

Don't let the entrails eat the liver.

Analogous to the foregoing.

225. — *Aza atao fively amponga ny havana : ka ny iray anabaviny tambitambazana, ary ny iray kosa andahiny hodabodabohana.*

Don't serve your friends as you do the ends of a drum : gentle to the one, and rough to the other.

Lit. *don't let friends (or relatives) be struck like a drum ; the female end, i.e. the treble end, being touched lightly, and the male end, i.e. the bass end, struck heavily.*

226. — *Raha mihavana aminay, aza milela-tanana.*

If you are friendly with us, don't lick your hands.

Perhaps said by sellers of honey, who wish their friends to give no evidence of their being interested parties.

227. — *Aza misoroka adidy ka tsy manan-tiana.*

Don't shirk responsibility and have no one beloved.

228. — *Raha soasoana no ataon-dRahavana, izaho irery mahatan-kadyvory, roa lahy mahasakana arivo.*

If it's good that my friend does, I alone can hold the ditch (or fosse), and two men can stop a thousand.

Old villages and homesteads in the central provinces were always defended by deep fosses, and the narrow pathway across could be easily held by a few resolute defenders.

229. — *Lafim-bato, vato ; lafin-kazo, hazo ; lafin-kavana, havana.*

The side of a stone is a stone ; the side of wood is wood ; the side of a relative (i.e. a distant relative) is a relative.

230. — *Ny amboa aza atao noho ny malala.*

Don't let a dog be preferred to a beloved one.

231. — *Mafanafana, hoatra ny latsa ataon-kavana.*

Rather warm, like the reproach of a friend.

232. — *Tsy tia ka manaratsy.*

Dislike brings abuse.

233. — *Tamam-pamono manambitamby ; vava mitezitra mpamalifaly.*

Accustomed to strike hard, he (now) pats gently ; the scolding tongue (now) makes joyful.

A pleasant change.

234. — *Ny maty aza te-ho maro.*

Even the dead wish to be many.

The Malagasy are a very sociable people, and their desire for the company of their fellows follows them to the grave. Thus the occupants of the family tomb are said to be ever seeking additions to their numbers ; and should any relative die at a distance and be buried in a temporary grave, it is believed that he cannot rest until he is charitably disinterred and carried to the last resting-place of his own kith and kin. [A large family grave near Ambôhimanga is called *Befilana*, i.e. 'many desires' or 'desiring much.']

235. — *Mita be tsy hanin' ny mamba.*

Cross in a crowd, the crocodile won't eat you.

Union is found to be safety as well as strength.

236. — *Asa vadi-drano, tsy vita tsy ifanakonana.*

You can't dig ground under water unless you do it together.

Lit. *turning over ground that is under water is not finished unless by hiding one another.* People are said to hide or cover one another, when they are on opposite sides of a big stone they are carrying on two poles. Hence *ifanakonana* indicates many doing work unitedly. The rice-fields are under water just before planting-time, and it requires two or three labourers working together to dig up the clods properly. Compare Nos. 1215, 1220, 1211, 1408, 1414, 1548.

237. — *Ny hazo tokana tsy mba ala.*

One tree doesn't make a forest.

238. — *Tondro tokana tsy mahazo hao.*

One finger won't catch a louse.

Lit. *index finger*. These two proverbs are generally mentioned together and signify the necessity of union to accomplish many purposes, like our "Union is strength." The latter proverb indicates a necessary, popular, and indeed almost universal employment carried on in highways as well as byways.

239.—*Raha olona iray no tsy tia ahy, mitoto koba hatavy aho; fa raha ny be sy ny maro no tsy tia ahy, hisotro tsingala ho faty aho.*

If one person dislikes me, I'll prepare rice-cakes and get fat, but if the many dislike me, I'll swallow a *tsingala* [a very small water-beetle, fatal if swallowed] and die.

240.—*Raha monina anosy, lavitra olon-kiresahana.*

If you live on an island, you are far from people to talk with.

Compare Nos. 271, 1045, 1049.

241.—*Olon-drery tsy mba vahoaka.*

One person doesn't make a multitude.

242.—*Ny be no basy.*

The many are guns.

243.—*Ny roa no tsara noho ny iray; raha lavo, misy mpanarina.*

Two are better than one; if (one) falls, there's another to raise him up.

244.—*Roa lahy miditra ala: ka izy tokiko, ary izaho tokiny.*

Two men entering the forest: it's "He is my confidence, and I am his."

245.—*Ny andro iray ihaonana toy ny andro zato.*

One day of meeting equals a hundred others (when there is no gathering of friends).

246.—*Toy ny tsindranolaky an-keniheny: ka ny tamana miray no miray.*

Like the locusts in the marsh; those who can unite do unite.

The *tsindranolaky* is one of the many species of locusts found in Madagascar.

247.—*Tsy mety raha fony tsimbòtry¹ niaraka hiany, ka adrisa² vao hifanary.*

It isn't right to have gone together when young and leave one another when old.

(1) *Tsimbòtry* = a young locust; (2) *adrisa* = a full-grown locust.

248.—*Misy rony,¹ miara-misotro; misy ventiny,² miara-mitsako.*

If there is gravy, we drink together; if there is meat, we chew together.

Lit. (1) *gravy of it*; (2) *substance of it*.

249.—*Izao isika izao maty iray hazo, velona iray trano.*

As for us, we are one in life and one in death.

Lit. *we have one plank (i.e. bier) in death and one house in life*.

250.—*Izay iray donak' afo, iray dinidinika.*

Who are one in smoke are one in talk.

The ordinary native house has no chimney, and as the inmates sit round the fire chatting over their family affairs, they get a fair share of smoke as well as heat. This proverb is the same in meaning as the three following.

251.—*Izay iray trano iray dinidinika.*

They of one house are of one talk.

252.—*Izay iray zaza no iray tafasiry.*

They who are one as regards children are one in chat.

253.—*Izay iray vatsy iray aina.*

They who are one in food are one in life.

254.—*Raha mandika ny soa nifanekena aho, tsy satry, fa avilindraha.*

If I break the good (covenant) agreed on, I do it unwillingly.

Lit. *it is not intended, but I am turned aside by something*.

255.—*Ny hevitra tsy azo tsy amin' olombelona.*

Knowledge is unattainable apart from others.

Lit. *thought is not obtained except from men.*

256.—*Maso sy orona, ka alahelo iraisana.*

Eyes and nose : they join in sorrow.

257.—*Toy ny vatsin' Andrianalabe, ka tsinjarain-kiombonana hiany.*

Like the woodman's victuals : divided out to be shared in.

258.—*Toy ny famaky mijinja hazo : ka ny ahy momba ny azy.*

Like the axe cutting down the tree : mine (i.e. the axe) goes with his (i.e. into the wood).

A mutual advantage or otherwise. The axe takes away the pieces of wood it has chopped from the tree, but the tree retains a piece from the broken edge of the axe.

259.—*Tapak' il'aketa, ila tsintsina : izay kely azo iaraha-mizara.*

Half of half a locust or of a linnet : * whatever little is got should be fairly divided.

260.—*Aza manao ahy sy azy.*

Don't say 'mine' and 'his.'

A variation of *meum et tuum*.

261.—*Ampombo malemy sy kisoa : ka faty no hisarahana.*

Soft husks and (greedy) hogs : death only parts them.

262.—*Fanirin-tсахondra, ka ny aloha tsy mihoatra, ary ny aoriana manao izay hitoviana.*

The growing of aloe-flowers : the earliest grows slowly, and the latest makes haste to catch them up.

Lit. *goes not beyond*. They are mutually obliging, like true friends.

263.—*Ny iray tsy tia mafana, ary ny iray tsy tia mangatsiaka ; ka ataovy marimaritra hiraiana.*

One likes heat, and the other likes cold ; pray agree on something and be friends.

264.—*Ny teny ierana tsy mba loza.*

An agreement brings no harm.

Compare No. 543.

265.—*Tsy misy mangidy noho ny sakay, fa raha teny ierana, dia hanina.*

There is nothing hotter than capsicum, but if agreed on, it is eaten.

266.—*Aza asiana angam-potsy sy anga-mainty, fa ataovy angana iray hiany.*

Don't put in a white dye and a black dye, but let there be one dye only.

Uniformity and not diversity.

267.—*Imerina akanga tsy roa volo, fa iray hiany.*

Imèrina is a guinea-fowl, not of two colours, but of one only.

Compare Nos. 11—13.

268.—*Trano atsimo sy avaratra : ka izay tsy mahalena ialofana.*

Houses north and south : we shelter in the one that doesn't leak.

Native houses are all detached residences, but they are often built so near each other that a single step will take the dweller from under a bad roof to the shelter of his neighbour's good one.

269.—*Aza atao tanantanana ivelan' ny fahitra lahy aho.*

Don't treat me as a castor-oil plant and leave me outside the cattle-pen.

Let me be amongst the many.

* More accurately, a species of Fan-tailed Warbler (*Cisticola madagascariensis*, Hartl.)—
ENS.

270.—*Aza mandeha singany toy ny kiraron' Ibenahy.*

Don't go alone like Ibēnāhy's shoe.

He had only one, poor fellow, but did his best to look smart in it and doubtless felt a grand as many another with two.

271. *Aza manao moni manaraka.*

Don't live alone.

See No. 240.

272.—*Aza mitangorona toy ny voangory ho ritra.*

Don't gather together like the *vōangōry* (beetle) about to die.

273.—*Aza manao omby tokana manaraka ny arivo.*

Don't be like one ox following a thousand.

274. — *Aza atao mitsoaka an-tonony, hoatra ny tohi-rofian' ankizy.*

Don't let it slip out at the joint, like the string tied by a child.

The string made from the Rofia palm.

275.—*Aza manao toy ny tandindona : miaraka hiany, fa tsy azo ho namana.*

Don't be like the shadow: a constant companion, but not a comrade (i.e. a friend).

276.—*Maro tsy azo tompoina : roa mifamono, telo mifanoro trano, fa iray no mahaso.*

Many can't be served: two fight each other, three burn each other's houses, but one does good.

Compare Matt. vi. 24: "No man can serve two masters."

277.—*Maro foana toa tanam-poza.*

Too many (by half), like crabs' feet.

"Too many cooks spoil the broth."

278.—*Izay akaiky ny vilany feno arina.*

They who are near the pot get black.

Compare Nos. 188, 1071-1076.

279.—*Mikamban-dratsy, toa gadra-lava.*

To be in bad company, like convicts in irons.

Compare No. 1737.

280.—*Lambarano voahosotra arina ; tafaray samy ngerona.*

Dark cloth smeared with soot; two black things joined together.

The dark blue Bengal or Pondicherry cloth.

281.—*Miaraka amin' ny ferena, ka ny tsara fanahy no maimbo.*

Being with the diseased, the good will be affected.

Compare Nos. 1070-1076.

282.—*Raha tsy marary, aza miray onduna amin' ny marary.*

Unless you are sick yourself, don't share the same pillow with a sick person.

Generally refers to judicial sickness, and is often used to justify the desertion of any one who has become obnoxious to the authorities.

283.—*Aza mifonoka ambanin' ny maimbo.*

Don't keep company with any one in bad odour.

A "take care of yourself at any price" proverb.

284.—*Tain' omby an-tany mena : raha tsy miombona afo, tsy miala.*

Cowdung on red earth: it won't come off except by fire.

A bad case; punishment only severs the union.

285.—*Aza manao foly mena tohizan-drofia.*

Don't join the bad to the good.

Lit. *don't join rofia (thread) to silken thread.* Rofia is a rough kind of thread made from the young pinnate leaves of the rofia palm, useful enough in its way, but quite unfit to be joined to fine soft silk.

286.—*Aza manao tsikombakomba ifanaovana.*

Don't join in a bad object.

287.—*Aza mandady miara-komana, hoatra ny mpiandry ratsy.*

Don't creep to eat together, like a company of bandits.

288.—*Aza manao volo-ngita mifandray tendro.*

Don't unite in wrong doing, like curly hairs on a woolly head.

Lit. *don't let curly hairs catch hold of each other's tips.* There is surely a conspiracy amongst them. They will curl up and try to take each other by the ends, comb and brush them as you may.

289.—*Aza mantsim-bao miray, hoatra ny rongony.*

Don't get bad before you unite, like hemp.

Referring to the preparation of hemp. It is boiled and allowed to get well-nigh rotten before it is worked up into threads.

290.—*Nahoana no manao kitapo miara-peno.*

Why do you all fill one bag?

The good shouldn't be associated with the bad.

J. A. HOULDER.

(To be continued.)



GEOLOGICAL NOTES OF A JOURNEY IN MADAGASCAR.*

I.—*Introduction.*—In the course of the year 1891 it fell to my lot to undertake a long and interesting journey of about 1200 miles in the island of Madagascar, during which I was able to make a few geological notes that may not be unworthy of record. Leaving the Capital, I proceeded in a north-easterly direction as far as Imérimandrôso,† in the province of Antsihanaka; then struck due east, reaching the sea at Féoarivo, a town situated about lat. $17^{\circ}25'S$. From here I followed the eastern coast, mostly along the water's edge, as far as the Bay of Diego Suarez, in the extreme north of the island; and thence I travelled down the north-western coast as far as the River Mèvarano, in lat. $15^{\circ}37'S$., finally proceeding by boat to the Island of Nòsibé (long. $48^{\circ}15'E$., lat. $13^{\circ}20'S$.), visiting several of the smaller islands on the way. It is of course impossible to give a detailed account of the geological features of the country traversed during such a journey; but, as so little is known of the geology of Madagascar, a general sketch may not be without value. I may say that specimens of all the different rock-types met with on the route were collected, and I hope to give a detailed description of them as soon as practicable.

For the sake of convenience, the part of the island travelled over may be divided into four sections: (1) that between the capital and

* Extracted from *Quar. Journ. Geol. Soc.*, Feb. 1895, vol. li.

† Except when otherwise mentioned, the native names are those of towns and villages.

the east coast, (2) the east coast (that is, the northern half of it), (3) the northern end of the island, and (4) the north-west coast and islands. These I shall now briefly describe in order.

II.—*The Country between the Capital and the East Coast.*—By far the most predominant rock between Antananarivo, the capital, and the east coast is a hornblende-granitite-gneiss. This rock, which covers so wide an area in the eastern half of Madagascar, is, for the most part, of a greyish or bluish-grey colour and of medium texture, and consists essentially of felspar (orthoclase and plagioclase), quartz, dark mica, and hornblende. It not infrequently becomes garnetiferous, but otherwise generally varies little in mineralogical composition. For many square miles (how many I cannot say) in the neighbourhood of the village of Sàhatàvy, about 20 miles west of Fenoarivo (east coast), the rock assumes a very distinctly banded structure, consisting of layers of white felspar (orthoclase and plagioclase), quartz, and dark mica, and is also somewhat garnetiferous. This is the most distinctly and beautifully banded gneiss that I have seen anywhere in the island. The prevailing direction of the strike of the rock between the capital and the Antsihanaka province, including the latter (the limits of which province may be given as about long. $48^{\circ}20'$ E. to long. 49° E., and lat. 17° S. to lat. 18° S.), is north-west and south-east, or north-north-west and south-south-east, although the general strike of gneiss in the island is a few degrees east of north and west of south. When I speak of the strike of the rock, however, I mean the strike of the foliation. As far as my observations of the Madagascar gneiss and its allied rocks go, the foliation appears to coincide with bedding,—at any rate with the chief divisional planes. East of the province of Antsihanaka, however, as far as the coast, the rocks assume the prevailing trend of a few degrees east of north and west of south.

In the Antsihanaka province itself another type of rock comes into great prominence, though not to the exclusion of the gneiss: this is olivine-norite. (See the map, No. 1.) It occupies a very large area (not improbably at least 200 square miles), though its precise boundaries are unknown. It rises into numerous fairly big hills, and is doubtless the rock underlying Lake Alaotra,* as it is found abundantly on both sides of the water. The grains of olivine in this rock are surrounded by a shell of hypersthene, outside which is a layer of actinolite. But norite without olivine also occurs. Occasionally the norite contains almandine-garnet. It is generally, though not always, fairly well foliated. The strike of this norite is also north-west and south-east, or north-north-west and south-south-east. Numerous patches of amorphous quartz, often milky-white in colour, make their appearance in the norite and crop out on the surface.

Coarse hypersthene-rock occurs in a *massif* or immense boss on the west side of Lake Alaotra. At the north and north-east end of the lake there is a very large exposure of quartz-magnetite rock, covering an area of many square miles. In some portions of it the magnetite appears to be almost or quite as abundant as the quartz. Occasionally, as between the villages of Imérimandrôso and Tsàrahonénana, the

* For an account of this extensive ancient lake, see my former paper in *Quart. Journ. Geol. Soc.* vol. xlv. (1889) p. 306.

magnetite is replaced by thin layers of a golden-looking mineral, which proves to be a ferruginous actinolite. In the south-east of Antsihanaka the gneiss is exceedingly coarsely foliated, some of the folia swelling out to a foot or even a yard in thickness. Amongst these pegmatite and graphic granite occasionally occur, as, for instance, at the village of Māngalāza. These are apparently part and parcel of the crystalline rock itself, and not fissure-injections. Very thick folia of hornblende, with a little felspar, are also noteworthy.

Other rocks occurring in this province of Antsihanaka are :—

Crystalline limestone and serpentine, near Ambátondrazaka, the capital of the province ;

Hornblende-pyroxene-granulite (123*), pyroxenite (Hunt) (113), and nepheline-basalt (124), near Amparafaravola, a village on the west side of Lake Alaotra ;

Limburgite (114, 115), near Mount Ambóngobé, south-east of the village of Ambatondrazaka ;

Also a kind of trap-granulite (236).

The country between the Antsihanaka province and the east coast is of a very mountainous character and is largely occupied by forest, the rock being so thickly covered over with soil and decayed vegetation that there are comparatively few good exposures. Sufficient evidence is, however, forthcoming to show that the rock is chiefly gneiss. About 6 or 8 miles east of the village of Ankaitomboka (long. 49° E., lat. 17° 20' S.), on the eastern boundary of the Antsihanaka province, a form of trap-granulite without a rhombic pyroxene occurs (264). About 5 miles east of the same village another form of the same rock occurs (283), but this time without garnet. Some of the trap-granulites might perhaps be styled norites, but their structure is thoroughly granulitic. Olivine-basalt (329) occurs also to a small extent in this neighbourhood. Between the villages of Tsarasambo and Sālangina (about 25 miles west of Fenoarivo) there is an exposure of garnet-rock, consisting of red garnet and ordinary green hornblende, though some portions of it are composed almost exclusively of garnet. It may be an extreme form of trap-granulite. There are also, especially as one nears the sea, several dykes of dolerite, subophitic in texture, which run in a generally north-and-south direction. It matters not from what point in the interior the country is traversed to the east coast, these dolerite-dykes are invariably met with. On the road, for instance, from the port of Tamatave to the capital there are at least six or eight such dykes, the most westerly of which is about 45 miles, and the most easterly about 8 miles, from the east coast. This fact, along with the almost unvarying similarity in mineralogical and textural character of the rock composing these dykes, points to the conclusion that they run continuously for great distances along the lower eastern slopes of the island. If the freshness of their condition be any criterion of their age, they belong to a comparatively recent geological period.

III.— *The East Coast.*— Perhaps the most notable fact in regard to the geological structure of the northern half of the east coast (as also, so far as I can learn, of the southern half) is the preponderance, among

* The numbers in parentheses throughout this paper refer to the microscopic slides in my collection.

the rocks exposed, of dolerite. From Fenoarivo to, say, lat. 14° S.*—a distance of about 200 miles (and my journey led me for the most part along the shore)—one sees comparatively little else than this dolerite; occasionally, however, the underlying gneiss comes to the surface. The question arises therefore,—Whence has it been derived? The only satisfactory explanation of its occurrence seems to be that it has flowed from large fissures farther inland, which at present are represented by the dykes above referred to. This I conclude from the following facts :—(1) The exact similarity, for the most part, in mineral composition and texture of the dyke-rock with that on the coast. I have examined microscopically several dozen sections of both. They consist almost always essentially of plagioclase and augite, and show subophitic, or very seldom typically ophitic, texture. Occasionally they contain also a slight amount of olivine. (2) The persistence of this one type of rock for so great a distance along the coast in a north-and-south direction. This is easily accounted for on the supposition of a dyke or series of dykes a few miles inland (which, as before stated, actually exist) running more or less parallel with the coast, from which lava has issued. (3) In some places the rock is distinctly traceable as a lava-sheet for several miles inland; and as there is no large volcanic vent or series of vents ranging parallel with the coast, from which it could have flowed, the dykes above referred to must be looked upon as its source. For these reasons I conclude that fissure-eruption has occurred on a large scale on the eastern side of Madagascar. The subophitic and ophitic textures also seem to suggest that the flow has been of considerable thickness.

The lava-sheet has been, at least in some places, enormously thick. A few miles north of the coast-town of Antalaha (lat. $14^{\circ} 57'$ S.), for instance, it covers the country to a great depth for several miles inland—how many I cannot say. In other localities numerous hills, some hundreds of feet in height, composed entirely of dolerite, stand as witnesses to the great volume of the lava-flow. This thickness may account for the prevalently doleritic texture of the rock; only occasionally is it basaltic. The lava has in many places been entirely removed by denudation, and in other places it is covered by dense impenetrable forest. The rock is almost always compact in texture, though in a few places it is vesicular, for example, at the locality known as Ambâtsofaingainy (532), lat. $15^{\circ} 8'$ S., about halfway between Ngõntsy and Antalaha, where it is amygdaloidal, the vesicles being filled in with calcite, quartz, dark green chalcedony, chlorite, and zeolites; the cracks in the rock being occupied by ferruginous matter and chalcedony. The rock at this locality is a basalt, or perhaps an andesitic basalt. A quite exceptional type of dolerite occurs at Antalaha itself (271), the tolerably large crystals of plagioclase and augite being embedded in brown tachylytic glass. This glass occupies more than half of the rock and is crowded with black trichites. At one place (about lat. 15° S., a mile or two from the sea) I noticed some volcanic breccia. Here and there are to be seen volcanic dykes cutting through the gneiss or granite on the sea-shore, the rock from which sometimes proves to be the usual

* the longitude is not given, the place indicated is on or near the coast.

subophitic dolerite and sometimes basalt. A doleritic dyke (376), for instance, occurs immediately south of the small village of Antsèranambè, south of Antongil Bay. The rock at the margin of this dyke contains a considerable amount of black tachylite (278). A basaltic dyke is to be seen 2 or 3 miles north of the village of Manòmpana, opposite the island of Ste. Marie. In this instance it cuts through dolerite, the basalt itself assuming a somewhat andesitic habit (373). Another dyke of basalt (317) (approaching to dolerite in texture), which may be called doleritic basalt, occurs at the village of Tànjona in Antongil Bay. Doubtless other dykes occur which are covered by the sand of the sea-shore.

Although by far the greater part of the lava has consolidated in the form of dolerite, there are one or two localities where it has assumed a much finer grain and occurs as basalt. At Isoàvinandriana, for instance, the capital of the province of Sàhambàvany (lat. $14^{\circ} 10' S.$), many square miles of country are covered by a basalt of exceedingly fine grain and of somewhat andesitic habit (275). At the River Lokôho, again, some 3 or 4 miles south of Isoavinandriana, the rock is also a basalt (310) with andesitic habit. At Ambòaniho (lat. $13^{\circ} 25' S.$), the capital of the Ihàrana province, basalt also occurs (303—307).

At this same town of Amboaniho, and for several miles north and south of it, as also for some distance inland, occurs another type of rock in great abundance, namely, felspar-porphry (302, 465, 468). Spreading, as it does, over a wide area, and forming very thick masses, there can, I think, be no doubt as to its being an actual lava-flow; but from what source it has proceeded I cannot say. Nothing, however, suggestive of volcanic cones is to be seen anywhere, so that this flow also may possibly have issued from a fissure or fissures in the crust. It varies more or less in character. Sometimes it is dark-coloured, almost black, with phenocrysts of flesh-coloured crystals of orthoclase. Its prevailing colour is, however, purplish. Occasionally the rock is quite or almost free from phenocrysts of felspar, when it may be called felsite. Felspar-porphry, together with felspar-porphry breccia (300), both of a purplish colour, occur in a hill 500 or 600 feet high, about 1 mile south of the village of Amboaniho (lat. $13^{\circ} 25' S.$), the breccia lying above the porphry, and this again being underlain by somewhat altered basalt (304—307), which forms the base of the hill. In other places the felspar-porphry becomes spherulitic (for instance, about 12 miles south of Amboaniho), the spherules being small, but very numerous.

Felspar-porphry occurs in small quantity also farther north, namely, about 2 miles south of the village of Andràvina (about lat. $12^{\circ} S.$).

Quartz-porphry (453, 454), felsite? (449), and rocks with abundant epidote are also found in the neighbourhood of lat. $13^{\circ} 17' S.$, a mile or two from the sea.

In one or two localities occur considerable areas of granitite (biotite-granite), as, for instance, in the neighbourhood of Vòhijànahàry (lat. $16^{\circ} 10' S.$), the capital of the Mānanàra province. Another extensive area, but of unknown limits, north of Antongil Bay, in the neighbourhood of long. $50^{\circ} E.$, lat. $15^{\circ} 20' S.$, taken as a central point, consists, for the

most part, also of granite. All the slides taken from the rock of this locality show under the microscope that it has been subjected to much mechanical disturbance, the structure being that known as cataclastic. The rock has here been very extensively invaded in all directions by dykes and bosses of epidiorite (387); this is especially the case some 8 or 10 miles north of the head of Antongil Bay (in the neighbourhood of the village of Fizony); but epidiorite also occurs now and then in dykes as far south as lat. 12° S. and as far north as lat. $13^{\circ} 15'$, where it forms fairly high hills (364). The epidiorite occasionally shows spheroidal weathering. In one locality (about long. $50^{\circ} 10'$ E., lat. $15^{\circ} 5'$ S.) I found in the bed of the River Sâhafihitra numerous blocks of chistolite-slate and argillaceous schist, but I nowhere met with these *in situ*. Quartzite occurs also in various localities in the neighbourhood of this granitic area. Of the precise field-relations of these rocks I cannot, I am sorry to say, give any particulars, having crossed the area only in one direction, and that somewhat hurriedly; but that the granite is eruptive seems to be indicated by the existence of the chistolite-slate, and also, not improbably, by the quartzite.

Aplite occurs also in considerable quantity in various localities, as 2 or 3 miles north of Manompana (lat. $16^{\circ} 43'$ S.), at Manambato (lat. $16^{\circ} 33'$ S.), at Manakambahiny (long. $49^{\circ} 43'$ E., lat. $15^{\circ} 8'$ S.), and at Ampânobé, 2 or 3 miles from the sea (lat. $13^{\circ} 40'$ S.).

Other rocks found on this eastern coast-line are:—

- | | |
|---|---|
| Hornblende-schist (263) (probably much altered epidiorite). | Three miles north of the village of Andranovôla in Antongil Bay; 4 or 5 miles south of Sôanierâna, at the head of Antongil Bay (269, 270); and also in the neighbourhood of the village of Sahaka, opposite the island of Ste. Marie. |
| Augitic quartz-diorite (312)..... | Village of Sahaka, opposite the island of Ste. Marie. |
| Mica-schist, crowded with crystals of blue kyanite, often a couple of inches in length. | Sôamiânina, opposite the island of Ste. Marie; and also several miles south of it. |
| Norite (374, 375) | Three or four miles north of the village of Antanambe (lat. $12^{\circ} 25'$); and a little south of the village of Tanjona, in Antongil Bay. |
| Diabase (279) | A few miles north of the town of Vôhimârina, lat. $15^{\circ} 20'$ S. |
| Hypersthene-dolerite? (363) (or norite?). | Village of Mandrisy, opposite the island of Ste. Marie. |
| Epidote-rock (425)..... | Long. $50^{\circ} 10'$ E., lat. $15^{\circ} 5'$ S. |
| Epidote-schist (556) | Near Soamiânina, opposite the island of Ste. Marie. |
| Volcanic tuff (446)..... | About lat. $13^{\circ} 50'$ S. |

It may not be unworthy of note that pieces of pumice from Krakatoa lie strewn along the entire length of the east coast.

Before concluding the remarks relative to the northern half of the east coast, it may be mentioned that, although the rivers are numerous, none

of them can be spoken of as large. Close to the sea, however, most of them assume a considerable width, but this is owing to the heaping-up of sandbanks by the ocean waves. A few miles inland they are mere streams. Some of them form lagoons several miles in length, and what is sometimes given as the northernmost limit of the numerous lagoons of the east coast is not actually correct, although those north of Tamatave are by no means so numerous or so large as those south of it.

IV.—*The Northern End of the Island.*—The part of the island here referred to is that which lies north of lat. 13° S. In the neighbourhood of Andravina (lat. $12^{\circ} 28'$ S.), on the eastern sea-board, and some miles south, there are numerous patches of thick loose sand extending 3 or 4 miles inland. These are apparently marine deposits. The River Lokia, a few miles north of lat. 13° S., marks as nearly as possible the boundary-line between the crystalline and the sedimentary rocks in the northern part of the island; for while immediately south of the river there are here and there a few outcrops of sandstone lying on the crystalline rock (granite), north of the river the central mountain-mass (which is merely the end of the great mountain-chain forming the backbone of the island) is composed of sedimentary strata, sandstone appearing first, succeeded a little farther north and overlain by oolitic limestone (467, 511, 519). This mountain-mass is not improbably 1200 or 1400 feet high. On the east side of the island it approaches the sea, being very steep, and leaving for the most part a flat belt of low-lying land at its eastern base of only a mile or two in width, and averaging perhaps 100 or 200 feet above the sea. On its western edge it is much more broken up and somewhat lower in altitude, and is composed of fossiliferous sandstone and oolitic limestone (480, 516). A comparatively flat area of varying width, but probably averaging about 20 miles, extends from its western base to the sea. Its extreme northern limit, where it forms a steep bold front running for some 15 or 20 miles in an easterly and westerly direction, and where it is composed mostly, if not entirely, of oolitic limestone, occurs at lat. $12^{\circ} 45'$ S. The dip of the rock is generally 10° to 15° N.W., and the actual thickness of the limestone must be very considerable. The River Lokia, therefore, which runs from west to east, is probably situated where the northern coast of the island lay in Jurassic times, and may be taken as the present northern limit of the outcrop of the gneiss and allied rocks that form the greater part of the eastern half of the island. I say 'Jurassic times,' because, judging from the fossil contents, which have been examined by Mr. R. B. Newton, F.G.S., there can be no question as to the age of these sandstones and limestones (though the latter may be in part Cretaceous), for although many of the fossils have a wide range of distribution, some of them can be classified with certainty as belonging to the Jurassic series of rocks. (See his paper, following the present one.)*

Between lat. $12^{\circ} 45'$ S., where the mountain-range very abruptly ends, and Diego Suarez Bay (about lat. $12^{\circ} 15'$ S.), the chief feature of interest is the mountain of Ambôhitra, which is situated about one-third way across the island, being nearer the west than the east coast. The position of its highest point is about long. $49^{\circ} 10' E.$, lat. $20^{\circ} 40' S.$ It

* [The sandstone fossils alluded to here are from the Antankarana province, on the north-western boundary of the central hill-range.—R. B. N.]

runs in a direction north and south for a distance of 10 or 12 miles and is probably about 5000 feet high, the highest point I attained being 4100. It is an extinct volcano, and has poured out lava which has flooded the low-lying country from sea to sea, and from Diego Suarez Bay in the north to about lat $12^{\circ} 35'$ on the eastern, and about $12^{\circ} 50'$ on the western side of the island to the south.* The area thus covered by the lava is probably no less than 1200 square miles. One small crater, now occupied by a lake, I discovered high up on the mountain, and another and larger lake, probably also a crater, is said to exist near the summit. The rock, from whatever locality it be taken, whether from the town of Diego, on the southern side of Diego Suarez Bay, or any other part of the lava-bed, or from any part of the mountain itself, is remarkably homogeneous in character: it is an olivine-basalt of a dark grey colour, the olivine-crystals being largely altered to serpentine. The upper part of the bed, where not decomposed into soil, is often very cellular, but for the most part the rock is compact. I nowhere found any traces of lapilli or ashes. Some of the numerous streams issuing from the mountain have excavated valleys through the lava to a depth of 200 or 300 feet. One of these streams (the Marfaràno), which flows into the Bay of Rôdo on the north-east coast (lat. $12^{\circ} 38' S.$), has cut through the lava-bed and into the underlying rock. Around the base of Ambohitra a goodly number (probably a score or two) of parasitic cones exist, some of which show breached craters, but none of which are in a good state of preservation. One of these (south-east of Ambohitra) I examined very cursorily. Some of the layers on the sides of the much-worn cone consisted of breccia, from which I picked out olivine-basalt, augite-andesite (477, the only specimen I met with in this part of the island), and a fine-grained sandstone, which had doubtless been brought up from the underlying strata. It may here be also mentioned that at the village of Ankâtoka, in the Antankàrana country, south of Ambohitra mountain, there are some hot springs; and about $1\frac{1}{2}$ mile south of the village of Anívoràno, at the south-eastern base of Ambohitra, there is what I take to be a crater-lake, known as Tanàvo, about a mile in diameter.

The mountain-mass lying immediately south-east of Diego Suarez Bay, referred to in the note below, is composed chiefly of reddish and greyish limestone (472, 473), which belongs to the Cretaceous series (probably Upper). In some places (as in the town of Ambôhimàrina) it assumes the aspect of ruined masonry. The strata appear to have a very slight dip northwards. That part of the mass on which the town of Ambohimarina stands (long. $49^{\circ} 26' E.$, lat. $12^{\circ} 27' S.$) reaches an elevation of 1400 feet above the sea, and about 800 or 1000 feet above the lava-flooded plain to the south and west. No part of the mountain-mass rises much higher than this. In the limestone I found several specimens of a fossil echinoid, which Mr. R. B. Newton identifies as *Lampadaster Grandidieri*. A microscopic section of the rock in which these occur shows it to be 'largely composed of *Globigerinae*.' The rock may therefore be called 'a *Globigerina*-limestone.' [R. B. N.] The

* Immediately to the south-east of this bay, however, there is a mountain-mass, covering an area of probably 100 square miles, which stands out high above the lava-bed; of this I shall speak by-and-by.

same section shows other forms of foraminifera, such as *Fronicularia*, *Nodosaria*, *Bulimina* (?), etc.

Evidence of recent elevation of the northern end of the island is to be found in several places. On the low-lying narrow platform adjoining the sea at the base of the mountain-range immediately north of the River Lokia, above mentioned, there are distinct patches of coral-bed, as also rock formed of sand and comminuted sea-shells. Again, at a considerable elevation above the sea, on the island of Nosimitsio (long $48^{\circ} 35'$ E., lat. $12^{\circ} 52'$ S.), north-west of Madagascar, Mr. Parrett gathered shells which, being compared, were found to be perfectly identical with those lying on the sea-shore. The north-west of the island, as far south at least as lat. $14^{\circ} 20'$ S. (probably much farther), has also been recently raised, as is proved by the existence of numerous sea-shells lying a few miles inland at a height of, at any rate, 100 or 200 feet. Further, in some of the larger vesicles on the surface of the lava-bed east of the mountain of Ambohitra, some 4 or 5 miles south of the town of Ambohimarina, spoken of above, I found the remnants of a kind of oyster-shell still firmly attached. The distance from the present coast-line where these were found was 8 or 10 miles, and the height above sea-level about 300 or 400 feet.

All these facts put together seem to point to the following conclusions in regard to the geology of the northern end of Madagascar:—(1) During some portion or portions or the whole of Jurassic and Cretaceous times this part of the island was beneath the sea. (2) It was afterwards raised, and, judging from the apparent absence of fossils later than Cretaceous, was probably above the sea during the interval between Cretaceous and recent times. (3) Then came subsidence to the extent at least of submerging the mountain-mass immediately south-east of Diego Suarez Bay and the part now forming the island of Nosimitsio (probably much more). (4) Afterwards elevation once more took place, but in quite recent times, the low-lying country between lat. $12^{\circ} 45'$ S. and this mountain-mass being perhaps excavated (possibly by marine action) during the upheaval, probably leaving the said mountain-mass for a while as an island. (5) During this upheaval (probably the latter part of it) the volcanic activity which brought into existence the mountain of Ambohitra commenced. This seems to be shown by the occurrence of the oyster-shells in the cavities of the lava at the locality above mentioned, which must have been at that time at or below sea-level, but which is now, as before stated, some 300 or 400 feet above it and 9 or 10 miles from the east coast. (6) The maximum of upheaval seems to have been attained in the neighbourhood of Diego Suarez Bay, or immediately south of it; and as the north-western coast appears to have been raised to a greater distance south than the north-eastern, the latter has probably experienced the minimum of upheaval.

North of Diego Suarez Bay there is a triangular headland known as Baobaomby, but of this little seems to be known. So far as I can make out, however, it appears to consist chiefly of limestone, or limestone and sandstone, with a few extinct volcanic cones.

V.—*The North-west Coast and Islands*.—The more or less abrupt western edge of the great central mountain-range of the island is, in the

north-west (a little south of lat. 13° and thereabouts), composed chiefly of brownish sandstone, except at the extreme northern portion, where, as has been already stated, it consists mostly of oolitic limestone. This sandstone is generally of coarse texture, containing in places numerous large round pebbles. The western base of this range as far as the sea is mostly occupied by a belt of low-lying land, or, rather, low undulating hills of varying width, and reaching probably nowhere a greater height than 600 or 800 feet, though isolated mountains here and there rise to a considerable elevation above the general level. These mountains sometimes consist of sandstone—for example, Angaraony (long. $48^{\circ} 12'$ E., lat. $14^{\circ} 20'$ S.); sometimes of plutonic rocks, as Bèzavona (long. $48^{\circ} 8'$ E., lat. $14^{\circ} 3'$ S.), etc. Angaraony, which reaches an elevation of perhaps 1000 feet above the ground below, with its comparatively horizontal sandstone strata, stands out as a witness to the great erosion which this part of the island has undergone. That the sandstones are of contemporaneous age with the limestones is shown by the fact that in certain localities—for instance, a mile or two south of Andranosamonta (long. $48^{\circ} 4'$ E., lat. $14^{\circ} 13'$ S.)—the limestones lie in beds distinctly intercalated in the sandstones and conformable with these, to which, nevertheless, they are always subsidiary. The limestones in this locality are very largely composed of lamellibranchiata, such as *Astarte Baroni*, etc.* These lie about on the ground (having weathered out from the matrix) in such quantities that they might be literally gathered in cartloads. This frequent alternation of sandstone and limestone would seem to point to a successive rising and falling of the land in this part of the island at the time of their deposition.

Some 4 or 5 miles north of Andranosamonta (300 or 400 feet above the sea and a mile or two from the shore) the limestone, as shown by its fossil contents, belongs to the Oxfordian series, one of the commonest species being *Perisphinctes* (*Ammonites*) *polygyratus*, Reinecke. This lies on the surface of the ground in great numbers, but unfortunately the limestone in which it is embedded has decayed into a mere clay, and thus the fossils are in a bad state of preservation, both they and their matrix being abundantly occupied by septaria filled with calcite. A few miles west of Ankaràmy occurs a black crystalline limestone, which, according to Mr. R. B. Newton, contains an organism called *Girvanella*. At Andranosamonta itself I was fortunate enough to find parts of the first fossil reptile that has been discovered in the island. It proves to be a new species of *Stenosaurus*, which Mr. R. B. Newton has named *S. Baroni*.† It may be noted that immediately north of this village selenite occurs in the clay.

This belt of low-lying land on the north-western coast consists therefore mostly of sandstone, though limestone is also abundant, the predominant dip of both being very slightly seawards. The sandstone is mostly of medium grain and brownish colour, and generally turns red in weathering. In some places spherical or oval nodules, about the size of a hen's egg, of ferruginous matter which has probably

* See Mr. R. B. Newton's paper (following this) for names of other fossils found here.

† *Geol. Mag.* 1893, pp. 193-196, pl. ix.; and ANNUAL XVII., pp. 26-28.

segregated from the surrounding mass, jut out from the exposed surface of the rock. Fossils gathered from the limestone show it to be mostly Jurassic, but occasionally Cretaceous (Neocomian), and on the coast-line mainly Eocene (Nummulitic Limestone). That this portion of the island has been recently elevated above the sea to the extent of at least 200 or 300 feet has been already stated; to this I need not therefore again recur.

In *Quart. Journ. Geol. Soc.* vol. xlv. (889) pp. 326, 327, I spoke of some strange rocks resembling erratic blocks lying on the surface of the ground in the neighbourhood of the village of Mahitsihazo (long. $48^{\circ} 5' E.$, lat. $14^{\circ} 17' S.$), whose existence I could not then account for, suggesting, with a good deal of doubt, that they had been possibly brought there by glacial action. The difficulty of accounting for their occurrence is now solved. I find from microscopical examination that these rocks are trachyte. But how came the blocks into their present position? The explanation is simple. Nearly the whole of this low-lying land, from the village of Mèlaka (long. $48^{\circ} 18' E.$, lat. $13^{\circ} 45' S.$) to that of Mahitsihazo, was once flooded with trachytic lava, which has since been largely denuded, leaving patches, sometimes many square miles in extent in various places, thus allowing the underlying sandstones and limestones to reappear at the surface. In other places mere blocks of rock, some of them as large as small cottages, are the only remnants left of the lava-bed, but those immediately north of Mahitsihazo have apparently rolled down from a higher level. The curiously and deeply guttered appearance of these latter blocks is probably due to the action of rain alone. The trachyte varies in texture from fine to coarse-grained, and in colour from buff or brownish to whitish. It is in places decayed and altered into clay, and is often somewhat fissile. Not infrequently it has weathered into small cuboidal blocks of an inch or two in diameter, the interstices being filled in with ferruginous matter, the blocks often becoming detached one from the other and covering the ground. Passing through the country in one direction only, I failed to gather sufficient data as to the direction of the lava-flow to indicate its source.

A mountain named Bezavona (long. $48^{\circ} 8' E.$, lat. $13^{\circ} 55' S.$), probably not less than 1200 feet high, is specially worthy of mention from the fact that it consists of the comparatively rare rock foyaite (491), the mineral with low double refraction proving to be nepheline. In long. $48^{\circ} 8' E.$, lat. $14^{\circ} 3' S.$, there is a hill (some 10 or 12 miles south of Bezavona) known as Ankitsika or Ambôhibaingana, probably 700 or 800 feet high. The rock is here volcanic, but in this case it is nepheline-phonolite (292, 294).^{*} Not far from the hill of Ankitsika (some 5 or 6 miles north-north-west of it) occurs an interesting form of hâÿne-nepheline-phonolite with well-formed crystals of melanite (268, 314, etc.). There seems to have been little, if any, actual outflow of lava from Ankitsika mountain. It is of interest to note the existence of foyaite, nepheline-phonolite, and hâÿne-nepheline-phonolite in such close association.[†]

^{*} Possibly some of the trachyte mentioned above may prove on further examination to be nepheline-phonolite.

[†] Since writing the above paper, I have found that nepheline-tephrite also occurs in the neighbourhood of Bezavona mountain.

The narrow promontory running north, which lies on the line of long. 48° E., and forms the gulf (Port Radama in some maps) at the head of which is the village of Andranosamonta, is chiefly composed of basalt, being olivine-basalt (282) on its eastern edge, and basalt without or with but little olivine on its western edge (254). In one locality (about halfway along the length of the promontory on its eastern side) I found in the basalt large nests of beautifully striped onyx and multicoloured Egyptian jasper. On the western side very large nodules of green chalcedony (237) occur in the basalt. In the olivine-basalt of the small island of Ankazobéravy, south-west of the large island of Nosibé, Egyptian jasper, banded in various colours and of rare beauty, is found.

Immediately south-west of Anórontsànga (long. $47^{\circ} 58'$ E., lat. $13^{\circ} 50'$ S.) there are four islands (excluding islets of little note): Ambariovaliha, Béroffa, Kálakajôro, and Antanifàly. The first three of these are volcanic, and are composed wholly of olivine-basalt similar to that above mentioned (256, 504). The rock is remarkable for the abundance of amygdules or nests of segregated minerals which it contains. These amygdules are generally of large size, often attaining to a diameter of a couple of feet. They are frequently hollow within (geodes), and consist for the most part of pure crystalline quartz, but sometimes of agate, onyx, or green (237) or brown chalcedony (501). Occasionally well-crystallized calcite, generally whitish, sometimes olive-green, accompanies the quartz, and is also often found filling fissures in the rock.

The island of Antanifaly, however, which is the westernmost of the group, consists entirely of Nummulitic Limestone, in which *Assilina spira*, de Roissy, and several species of *Nummulites* (see Mr. R. B. Newton's paper) are the commonest fossils. About 30 miles or so north of these islands (lat. $13^{\circ} 30'$ S.) there are three islets near the mainland: Kivònjy, Antsóha, and Ankazoberavy, the last two, and probably also the first, being volcanic, the rock again being olivine-basalt, which on Antsóha is columnar, the columns, however, being much bent and irregular. Kivonjy is a round beehive-shaped islet, the rock of which, from a distance, has a whitish colour. It may possibly be trachyte.

Farther north again is the large island of Nosibe, which is in the possession of the French. This island is for the greater part dotted over with volcanic cones of no great height, which are in a fair state of preservation. There are two fine crater-lakes on its southern edge. The only specimen of the rock which I gathered from this island proves to be nepheline-basalt (265).

Another island, Nosimitsio, farther north again (long. $48^{\circ} 35'$ E., lat. $12^{\circ} 52'$ S.), which, however, I have not seen, is also volcanic. On the east coast of this island there are said to be some fine exposures of columnar basalt, and, as was mentioned before, shells have been here gathered at a height of 200 or 300 feet, exactly corresponding to those lying on the shore.

Thus we see that, while trachytic and phonolitic lava has been poured out in great quantity in the north-western part of Madagascar, basaltic lava has been erupted in equal, if not even in greater, measure; and that, while trachyte seems to be confined to the mainland not far from the sea, basalt occupies parts of the coast line of the same, and

apparently forms, with the one exception already mentioned, all the islands in the region. Basalt is not, however, entirely absent several miles inland, as it may be picked out of the beds of some of the rivers immediately below the western declivity of the central mountain-chain, as, for instance, close to the village of Ankaramy, about 20 miles from the coast.

On the sea-coast at Ambôdimadiro (long. $48^{\circ} 14' E.$, lat. $13^{\circ} 37' S.$) a goodly number of dykes of a rather anomalous basalt make their appearance (see description by Dr. Hatch in *Quart. Journ. Geol. Soc.* vol. xlv. 1889, p. 345), reminding one of those on the sea-shore near Belfast in the north of Ireland. Here it may be mentioned also that an interesting rock allied to Rosenbusch's camptonite, together with an andesite, occurs east of the village of Jangôa (long. $48^{\circ} 19' E.$, lat. $13^{\circ} 40' S.$).

We see, therefore, that in this north-western part of Madagascar both intermediate and basic lavas occur, consisting of trachyte, phonolite, hâiÿne-nepheline-phonolite, nepheline-tephrite, andesite (rare), basalt, and olivine-basalt.

At Ambâvatôby, a small bay on the mainland south-west of the island of Nosibè, coal of excellent quality is said to have been obtained (see *Annales des Mines*, 1854, 1856, 1866). I visited all the points in this bay where coal is said to exist, and could find nothing but thin seams of carbonaceous shale intercalated among (Jurassic?) sandstones. What there may be below the surface I cannot of course say, but I am strongly inclined to doubt altogether the existence of coal. This carbonaceous shale, it may be mentioned, occurs at several points on the roundish headland south of Nosibè.

Such is a brief account of some of the more salient features in the geology of those parts of Madagascar traversed during my journey, and I trust that, in spite of its imperfection, this account will not be found altogether devoid of interest from the geological point of view.

R. BARON (ED.).

Perhaps I may be allowed here to make one or two slight alterations and corrections of my former paper entitled "Notes on the Geology of Madagascar," *Quart. Journ. Geol. Soc.* vol. xlv. (1889).

P. 308.—In first paragraph under "Crystalline Schists, etc.," instead of "For instance... 60 or 80 miles," read: "For instance, a large area in the interior, reaching from about the capital to at least 100 miles north of it, and probably 60 or 80 miles in width, consists of gneiss, with the strike of the foliation running generally in a north-westerly or north-north-westerly and south-east or south-south-easterly direction, or approximately thereto."

P. 311, lines 9 and 10 from top.—For "It is a reddish rock....decayed gneiss," substitute: "This rock may be described as sillimanite-schist, being composed of sillimanite and quartz, with abundant almandine-garnet, by the presence of which the rock is coloured red."

On map.—For "bosses of diorite" read "cones of nepheline-phonolite."



ON A COLLECTION OF FOSSILS FROM MADAGASCAR.

I. *Introduction*.—The fossils contained in this collection were procured from a number of localities in the northern and north-western parts of Madagascar by the Rev. R. Baron, during an extensive journey which he undertook in 1891, as a missionary of the London Missionary Society. They may be regarded as supplemental to those that he collected some few years previously in the north-western districts, and which were described in 1889 before this Society as representative of Eocene, Cretaceous, and Jurassic rocks.

The present collection, besides comprising organic remains from these different horizons, contains a few terrestrial shells referred to *Achatina panthera*, *Achatina* like *A. Layardi*, *Buliminus (Rachis) punctatus*, and *Pomatias (Tropidophora) virgata*. These were found in a Quaternary deposit capping the hill of Ambôhimarina at a height of over 1400 feet above sea-level, and they are known to exist on the island at the present day. The Tertiary (Eocene) specimens consist entirely of foraminifera. They were obtained from the island of Antanifaly (N.W. coast) and have been determined as *Nummulites* allied to *N. Bellardii*, *N. perforata*, *N. complanata*, and *Assilina spira*; species which have a wide distribution, though mostly confined to South European countries, Egypt, West Asian localities, and India.

The Cretaceous fauna contributes one specimen of *Lampadaster Grandieri*?, found in a red limestone, immediately beneath the subsoil of Ambo-marina hill, which also contains *Fronicularia*, etc., and dense masses of *Globigerinae*; while examples of *Belemnites pistilliformis* prove the presence of Neocomian rocks north of Andranosamonta village.

Among Jurassic fossils a new species of gastropod has been described, besides several lamellibranchs; while a form of *Perna* with extremely antero-convex valves has been doubtfully referred to a Syrian species. In studying the Jurassic fauna of Madagascar, one is struck with its resemblance to that of England, Europe, Eastern Africa, and India. Such forms as *Trigonia pullus* and *T. costata* occur in all these regions, *Ceromya concentrica* and *Modiola imbricata* are recorded from Eastern Africa and Madagascar, while *Stephanoceras Herveyi*, *Corbula pectinata*, and *Rhynchonella concinna* are found alike in Madagascar and India. The Jurassic rocks of Eastern Africa extend from Abyssinia* through Shoa, Mombassa, Mtaru to Mozambique, at which latter locality Beyrich† has reported the discovery of a *Phylloceras* (allied to) *heterophyllum*, a species also found in Madagascar.

Several cephalopods have been described from East African localities by Beyrich,‡ Douvillé,§ Tornquist,|| and Futterer,** many of them being referred to Indian forms, and the correlation-tables given by the last-named author prove very conclusively that a close relationship exists between these widely separated Jurassic regions.

In completing my work on the fossils shortly to be described, I wish to record my obligations to the following specialists for their kindly assistance

* W. T. Blanford, *Observations on the Geology and Zoology of Abyssinia*; 1870, pl. viii. pp. 176-180, 199-203.

† *Monatsb. k. preuss. Akad. Wissensch. Berlin*; 1877, p. 765.

‡ *Ibid.* pp. 96-103.

§ *Bull. Soc. géol. France*; ser. 3, vol. xiv. (1886) pl. xii. p. 223.

|| *Fahrb. d. hamburgisch. naturw. Gesellsch.* 1893, vol. x. pt. ii. 3 plates, pp. 265-288.

** *Zeitschr. deutsch. geol. Gesellsch.* vol. xlvi. (1894); pls. i.-vi. pp. 1-49.

and advice: - To the late M. Gustave Cotteau for identifying the Cretaceous echinoid; to Prof. T. Rupert Jones, Dr. G. J. Hinde, Mr. E. Wethered, Mr. E. T. Newton, and Mr. W. W. Watts, for their help in identifying the limestone-structures; to Mr. G. C. Crick for suggestions regarding the cephalopods; and to Mr. Edgar Smith for examining the post-Tertiary mollusca.

It is important to note that Mr. Baron, following up a former precedent in connexion with his first series of Malagasy fossils, has most generously given the present collection to the Geological Department of the British Museum.

II. — *Previous Work on the Palæontology of Madagascar.** — The earliest record bearing upon this subject is by Buckland,† who, in September 1821, described a rock of Secondary age from Point Lougè or Loquez, on the north-eastern coast, somewhat resembling New Red Sandstone, but containing no organic remains. The recent limestone formations occurring round the coast-line of Madagascar were also referred to as being "composed of granulated fragments of shells agglutinated by a calcareous cement," the shells being too broken to allow of their determination.

Later in the same year, James Sowerby‡ described *Isocardia minima* from the English Cornbrash, and stated that he had "similar ones from Madagascar." This would form the first reference to a recognized fossil mollusc from that country.

During 1854 an anonymous author§ reported the discovery, by some French naval officers, of lignite-deposits containing plant-impressions on the Island of Nossi-Bé and at neighbouring localities in the north-west. These deposits were stated to be of, probably, Secondary age.

In the following year Herland|| called attention to a recent limestone with *Nummulites* which he had found bordering parts of the coast-line of Nossi-Bé, during his survey of that island.

M. Guillemin¶ in 1866 described very fully the coal-districts in the north-west, but made no allusion to the presence of fossils, and therefore no statement as to the age of the beds. The occurrence of Secondary fossils in the southern parts of the island was announced by M. Grandidier** in 1867, and one of the specimens was described in the succeeding year by the late Paul Fischer†† as a Jurassic species, under the name of *Nerinea leiogyra*.

MM. Crosse and Fischer‡‡ during the same year noticed some terrestrial shells of Quaternary age which had been collected by M. Grandidier near Cape Ste. Marie, in the extreme south. They were found associated with *Æpyornis*-remains in the sand-dunes, which here rise to a height of 142 metres (466 feet), the species being closely allied to those existing on the island at the present time. They were determined as *Buliminus Grandidieri*, C. & F., *B. subobtusatus*, C. & F., *B. Favannei*, Lamarck, *Helix* sp., and *Cyclostoma (Otopoma ?) Grandidieri*, C. & F.

* Excluding references to Quaternary vertebrata.

† "Notice on the Geological Structure of a part of the Island of Madagascar;" *Trans. Geol. Soc. ser. 1, vol. v. (1821) p. 479.*

‡ *Mineral Conchology*; vol. iii. (1821) p. 171.

§ "Découverte de Lignite à Nossi-Bé et sur la côte occidentale de Madagascar;" *Annales des Mines*, ser. 5, vol. vi. (1854) pp. 570-576.

|| "Essai sur la Géologie de Nossi-Bé;" *Annales des Mines*, ser. 5, vol. viii. (1855) p. 335, pl. 335, pl. v. (map).

¶ "Notice sur une Exploration géologique à Madagascar pendant l'année 1863;" *Annales des Mines*, ser. 6, vol. x. (1866) p. 277.

** "Notice sur les Côtes sud et sud-ouest de Madagascar;" *Bull. Soc. Géographie*, ser. 5, vol. xiv. (1867) pp. 384-395.

†† "Note sur la Géologie du sud de Madagascar;" *Bull. Soc. géol. France*, vol. xxv. (1868) p. 398 (not figured).

‡‡ "Note sur quelques espèces nouvelles de Madagascar recueillies à l'état fossile;" *Journ. Conchyl.* (Paris) vol. xvi. (1868) pp. 180-187, pl. vii, figs. 1-3.

M. Grandidier,* in 1871, mentions that he had, during 1865 and 1866, collected fossils belonging to the Carboniferous epoch on the north-western coast at the Bay of Passandava, but states that they were accidentally destroyed by fire, together with his notes, sketches, and other valuable data made during that period. [The nature of these fossils is not stated; they probably consisted of plant-remains from the lignite-deposits which have been regarded as of Secondary age.]

The first reliable proofs of an Eocene fauna were obtained by M. Grandidier from near St. Augustine's Bay, on the south-western coast, and the specimens were identified by Fischer† in 1871 as:—

Alveolina (like) *ovoidea*, d'Orbigny, or *subpyrenaica*, Leymerie.

„ *longa*, Czjzek.

Orbitoides (like) *papyracea*, Boubée.

Triloculina (like) *trigonula*, d'Orbigny.

Ostrea pelecydion, Fischer,

like *O. Villei*, Coquand, or *Perna Mulleti*, Deshayes.

Ostrea Grandidieri, Fischer.

Neritina Schmideliana, Chemnitz.

Terebellum (like) *obtusum*, J. de C. Sowerby.

In 1872 M. Grandidier‡ noticed the enormous development of Jurassic rocks in Madagascar (overlain in parts by a narrow band of Nummulitic limestone containing *Neritina Schmideliana*, *Alveolina*, etc.), which was stated to extend from the southern border of the Bay of Narinda to the western slope of the granitic mountains protecting Fort Dauphin (south-east corner).

Fischer§ described another series of fossils in 1873, collected by M. Grandidier from the Jurassic rocks of Tulléar and Môrondava in the south-western portion of the island. His determinations and horizons were as follows:—

Nerinea leiogyra, Fischer.

Natica (near to) *Clio*, d'Orb. [Oxfordian].

„ „ *canaliculata*, Morris & Lycett [Great Oolite].

„ „ *dubia*, Römer [Kimeridge].

Solarium (near to) *polygonum*, d'Archiac [Great Oolite].

Trochus (near to) *Ibbetsoni*, Morris [Great Oolite].

Cerithium eribote, d'Orb. [Oxfordian].

(like) *rusciense*, d'Orb. [Oxfordian].

Alaria sp.

Rhyncholites (like) *gigantea*, d'Orb. [Oxfordian].

Ammonites fimbriatus, J. Sowerby [Lias].

„ (group) *heterophyllus*, J. Sowerby [Lias].

„ „ *Parkinsoni*, J. Sowerby [Inferior Oolite].

Astarte excavata, J. Sowerby [Inferior Oolite].

„ (group) *depressa*, Münster [Oxfordian].

„ „ *minima*, Phillips [Great Oolite].

„ „ *phyllis*, d'Orb. [Oxfordian].

„ „ *alta*, Goldfuss [Lias].

Rhynchonella tetrahedra, J. Sowerby [Lias and Inferior Oolite].

„ *concinna*, J. Sowerby [Great Oolite].

M. de Fromental determined the corals as:—

Montlivaltia trochoides, M.-Edw. & Haime [Inferior Oolite].

* "Madagascar;" *Bull. Soc. Géogr.* ser. 6, vol. ii. (1871) p. 88.

† "Sur l'existence du terrain tertiaire inférieur à Madagascar;" *Comptes-rendus, Acad. Sci. Paris*; vol. lxxiii. (1871) p. 1392 (no figures given).

‡ "Madagascar;" *Bull. Soc. Géogr.* ser. 9, vol. iii. (1872) p. 369.

§ "Sur le terrain jurassique de Madagascar;" *Comptes-rendus, Acad. Sci. Paris*, vol. lxxvi. (1873) p. 111 (no figures given).

Epismilia Grandidieri, n. sp. } [No horizons given,
Isastrœa Fischerei, n.sp. } but probably Lias.]

In 1877 the Rev. J. Richardson,* of the London Missionary Society, published details of his journey through the southern districts of Madagascar. In the vicinity of Aborâno he collected some well-preserved Secondary fossils of Jurassic age (wrongly referred to the Neocomian by the Rev. James Sibree†), which were figured, to form the plate accompanying his pamphlet, but without names or descriptions. These figures represent an echinoid and an ammonite, both subsequently described and re-figured by the present writer‡ as *Stomechinus* (allied to) *bigranularis*, Lamarck, and *Stephanoceras Herveyi*, Sowerby, respectively; a *Nerinea*; a *Rhynchonella*; a *Terebratula*; and two lamellibranch shells. This plate is of great interest, for it contains the first published illustrations of a Jurassic fauna from Madagascar, and I am indebted to the Rev. George Cousins for calling my attention to it. The Rev. R. Baron§ in 1886 recorded the occurrence of an extinct form of *Equisetum* in a siliceous sinter-deposit or geyserite which he found in one of the valleys close to some extinct volcanic craters, near Ambôhidratrimo (north-east of Antananarivo). He also mentions the finding of numerous fragments of fossil plants in an ironstone-and-shale deposit on the plain of Ankar (Central Madagascar), one being recognized as *Calophyllum parviflorum*, Bojer (a dicotyledonous plant).

In 1887 Cortese|| referred to a lignite-deposit in the neighbourhood of Amparihîbè (near Betsibôka river) which he regarded as of Pliocene age, but the lignite of Nosi-Bè and the neighbouring region he** identified as doubtfully of Permo-Carboniferous age in the succeeding year.

In 1889 I reported†† upon a collection of fossils obtained by the Rev. R. Baron from various localities in the north-west, and included in it some references to a few specimens belonging to the Rev. Dr. Deane, which were collected by the Rev. J. Richardson in the south-west. Two of these latter specimens were figured, as previously mentioned, in Mr. Richardson's plate published in 1877. An examination of Messrs. Baron and Richardson's fossils confirmed the work of previous observers as to the existence of Eocene and Jurassic rocks in Madagascar, while a Cretaceous fauna was apparently identified for the first time.

The Eocene fossils consisted principally of foraminifera, referred to *Alveolina oblonga*, *Nummulites biarritzensis*, *Assilina spira*, etc.

The Cretaceous included such forms as *Nautilus Fittoni*, *Belemnites pistilliformis*, *B. conicus*, *B. polygonalis*, *B. binervius*, *Alectryonia unguolata*, *A. pectinata*, *A. Deshayesi*?, *Gryphœa vesicularis*, etc.

The Jurassic rocks were represented by *Stephanoceras Herveyi*, *Belemnites Sauvanausus*, *Nerita Buvignieri*, *Nerinea* (allied to) *Eudesi*, *Pteroperna costatula*, *Modiola imbricata*, *Pholadomya ambigua*, *Ceromya concentrica*, *Astarte* (?) *Baroni* (n. sp.), *Sphœra madagascariensis* (n. sp.), *Terebratula maxillata*, *Rhynchonella obsoleta*, *Stomechinus* (allied to) *bigranularis*, *Isastrœa*, etc.

* *Lights and Shadows; or Chequered Experiences among some of the Heathen Tribes of Madagascar;* 1877. Plate [fossils] and route-map [Antananarivo]. 8vo. The fossils are referred to on pp. 38 and 68.

† "Observations on the Physical Geography and Geology of Madagascar;" *Nature*, vol. xx. (1879) pp. 368-372.

‡ "Notes on Fossils from Madagascar, with Descriptions of two New Species of Jurassic Pelecypoda from that Island;" *Quart. Journ. Geol. Soc.* vol. xlv. (1889) pp. 334, 338, pl. xiv. figs. 1, 2, 12-15.

§ "Notes on the Geology of the Interior of Madagascar;" *Antananarivo Annual* for 1885, no. ix. pp. 59-77.

|| "Osservazioni geognostiche sul Madagascar;" *Boll. R. Comit. geol. Italia*, vol. xviii. (1887) p. 187.

** "Appunti geologici sull' Isola di Madagascar;" *op. cit.* vol. xix. (1888) pp. 123 & 123.

†† R. B. Newton, *op. jam cit.*

Later in the same year (1889) M. Gustave Cotteau* described, but without figuring, two Cretaceous echinoids collected by Colonel Rocard at Antsingy, south of the Bay of Diego Suarez, in the extreme north of the island. These were determined as *Guettaria Rocardii* (n.sp.) and *Lampadaster* (n. gen.) *Grandidieri* (n. sp.).

Early in 1890, the late Prof. Neumayer† summarized the more important results which he considered deducible from the determinations of Mr. Baron's fossils made by myself in the previous year. He instituted a comparison between the Uitenhage (Neocomian) formation of South Africa and the Neocomian beds of Madagascar, taking the *Belemnites* for his palæontological standard. The only species of this cephalopod occurring in the former is *B. africanus*, referred to the group *Absoluti*, which is typical of the boreal region and the northern part of the temperate zone.

The belemnites of Madagascar are represented by the groups *Hastati*, containing *B. pistilliformis*; and *Notocæli*, containing *B. conicus*, *B. polygonalis*, and *B. binervius*; both of which groups include typically equatorial forms, and, though widely distributed in Middle European regions, do not occur in northern territories or in boreal areas. This evidence was regarded, together with other details, as demonstrating the existence of land in Cretaceous times extending from South Africa across the Indian Ocean. The whole of this subject was subsequently enlarged upon in Dr. W. T. Blanford's‡ Presidential Address before the Geological Society during the same year.

A list of the known fossils from Madagascar was published by Mr. Baron § in 1890. One hundred and five species were enumerated, with their horizons and localities.

In April 1893, M. Gautier|| directed attention to the occurrence of *Alectryonia* (*Ostrea*) *ungulata* at Mahamavo (lat. 15° 30' 45" S., long. 44° 10' 50" E.) in the north-west, and alluded to the rocks containing them as of Jurassic age, specifying the strata on a map which accompanied his remarks. This was an error of judgment, as the species referred to was typically Cretaceous.

In May 1893, I described¶ the first recorded Secondary reptile from Madagascar. This interesting specimen was discovered by Mr. Baron at Andranosamonta village, in the north-west; and from its association with certain forms of molluscan remains (to be afterwards alluded to) was judged to be of Lower Oolitic age. This new species was named *Steneosaurus Baroni*.

Subsequently, in the same year, M. Stanislas Meunier** determined some Cretaceous oysters collected by M. Gautier at Mahamavo as *Ostrea frons* [= *O. pectinata*], *Ostrea santoniensis* [= *O. Deshayesi*], both of Sénonian age; and *Ostrea columba* [should be *Gryphæa vesicularis*], of Cénomanian age. These species were well illustrated by figures of the natural size.

M. Meunier refers in the same communication to the occurrence of Inferior Oolitic lamellibranchs at Belàlitra (west of Mojangà, lat. 15° 40' S., long.

* "Echinides crétacés de Madagascar;" *Bull. Soc. zool. France*, vol. xlv. (1886) pp. 87-89.

† "Ueber neuere Versteinigungsfunde auf Madagascar;" *Neues Jahrb.* 1890, vol. i. pp.

1-9.

‡ *Quart. Journ. Geol. Soc.* vol. xlv. (1890); *Proc.* p. 98.

§ "Geological Notes: a complete List of the Known Fossils from Madagascar;" *Antananarivo Annual* for 1890, no. xiv. pp. 242-245.

|| "Mission Émile Gautier à Madagascar;" *Annales de Géographie*, (Paris) 1893, no. 7, pp. 355-364; map (partly geological).

¶ "(On the Discovery of a Secondary Reptile in Madagascar, *Steneosaurus Baroni* (n. sp.)." *Geol. Mag.* 1893, pl. ix. pp. 193-196; reprinted in the *Antananarivo Annual* for 1893, no. xvii. pp. 26-28.

** "Fossiles Malagaches;" in *Le Naturaliste* for 1893 (August), ser. 2, no. 154, pp. 175, 176 [with five illustrations].

45° 20' E.), resembling *Modiola*; to the finding of Jurassic specimens of somewhat different horizon at Andranomèna (lat. 14° 15' S., long. 45° 26' 10" E.), representing *Natica*, *Pinna*, *Astarte*, and *Rhynchonella*; and to the discovery of Dinosaurian relics at a place called Motèty.

Finally, Mr. J. T. Last,* in a popular newspaper article, mentions that he has collected in the northern part of Madagascar (at a spot about 20 miles east of the Bay of Narinda) the remains of a gigantic Dinosaur, which are now located in the British Museum.

III. - *Jurassic Fossils*.—[The technical descriptions given by Mr. Newton are here omitted.—R. B.]

Cephalopoda.

BELEMNITES HASTATUS, Blainville. *Horizon*.—Oxfordian. *Loc.* - Andranosamonta village, landing-place. [England, Southern Europe, and India.]

BELEMNITES SAUVANAUSUS, d'Orbigny. *Horizon*.—Oxfordian. *Loc.* - Andranosamonta village, landing-place. [France.]

PERISPINCTES, sp. (probably allied to *polygyratus*, Reinecke). *Horizon*. - Jurassic (probably Kimeridgian). *Loc.*—North of Andranosamonta.

Gasteropoda.

[Internal cast of a Patelloid shell.] *Horizon*.—Lower Oolite. *Loc.*—3 miles north of Iraony.

[A Naticoid shell.] *Horizon*.—Lower Oolite. *Loc.*—About 3 miles north of Iraony.

NATICA sp. [Casts.] *Horizon*.—Lower Oolite. *Loc.*—About 10 miles S.E. of Andranosamonta village.

EULIMA? sp. This is a sandstone-impression of a small specimen, probably referable to this genus; it was found associated with *Astarte depressa*, *Pteroperna costatula*, and *Trigonia pullus*. *Horizon*.—Oolite (Lower?) *Loc.*—Antankarana province, north-western boundary of the central hill-range. According to Mr. Baron, the sandstones containing this shell are largely developed in this region, but fossils are rare.

TROCHACTÆONINA RICHARDSONI, sp. nov. The name of *Trochactæonina Richardsoni* is proposed for it, in honour of the Rev. J. Richardson, of the London Missionary Society, to whom we are indebted for the earliest published figures of Jurassic fossils from Madagascar. *Horizon*.—Oolite (probably Lower), from the same rocks as those which contain *Steneosaurus Baroni*. *Loc.*—Andranosamonta village.

Lamellibranchiata.

PERNA ORIENTALIS?, C. E. Hamlin. *Horizon*.—Lower Oolite. *Loc.*—About 3 miles north of Iraony.

PERNA LATOCONVEXA, sp. nov. *Horizon*.—Oolite (probably Lower), from the same rocks as those which contain *Steneosaurus Baroni*. *Loc.*—Andranosamonta village.

GERVILLIA IRAONENSIS, sp. nov. *Horizon*. - Lower Oolite. *Loc.*—About 3 miles north of Iraony.

LIMA IRAONENSIS, sp. nov. *Horizon*.—Lower Oolite. *Loc.*—About 3 miles north of Iraony.

PTEROPERNA (allied to) COSTATULA. *Horizon*.—Oolite (probably Lower). *Loc.*—Antankarana province, on the north-western boundary of the central hill-range.

* "The Hot Springs of Madagascar;" in *The Field* for May 26th, 1894, vol. lxxxiij, pp. 267

TRIGONIA PULLUS, J. de C. Sowerby. This is a sandstone-impression accompanying *Pteroperna costatula*, *Astarte depressa*, etc. It has a wide distribution, having been recorded from the Antalo Limestones of Abyssinia; from Shoa, S. of Abyssinia; and from Cutch in India. *Horizon*.—Oolite (probably Lower). *Loc*.—Antankarana province, on the north-western boundary of the central hill-range.

TRIGONIA COSTATA, Parkinson. This species has been recorded from Abyssinia by W. T. Blanford, and from India by J. de C. Sowerby. *Horizon*.—Lower Oolite. *Loc*.—About 3 miles north of Iraony.

ASTARTE (allied to) DEPRESSA, Goldfuss (Münster). *Horizon*.—Oolite (probably Lower). *Loc*.—Antankarana province, on the north-western boundary of the central hill-range.

MYTILUS MADAGASCARIENSIS, sp. nov. *Horizon*.—From the Oolite (probably Lower), associated with *Steneosaurus Baroni*. *Loc*.—Andranosamonta village.

MODIOLA ANGUSTISSIMA, sp. nov. The specimen was obtained from the matrix enclosing the remains of *Steneosaurus Baroni*. *Horizon*.—Lower Oolite. *Loc*.—Andranosamonta village.

CORBULA PECTINATA, J. de C. Sowerby. *Horizon*.—Oolite (probably Lower). *Loc*.—About 2 miles south of Andranosamonta village.

CORBULA GRANDIDIERI, sp. nov. *Horizon*.—Oolite (probably Lower). *Loc*.—About 2 miles south of Andranosamonta village.

PSEUDOTRAPEZIUM VENTRICOSUM, sp. nov. *Horizon*.—Oolite (probably Lower). *Loc*.—about 2 miles south of Andranosamonta village.

PSEUDOTRAPEZIUM DEPRESSUM, sp. nov. *Horizon*.—Oolite (probably Lower). *Loc*.—About 2 miles south of Andranosamonta village.

PSEUDOTRAPEZIUM ELONGATUM, sp. nov. *Horizon*.—Oolite (probably Lower). *Loc*.—About 2 miles south of Andranosamonta village.

Brachiopoda.

RHYNCHONELLA (allied to) PLICATELLA, J. de C. Sowerby. This species has been already recorded from near Ankoala.* *Horizon*.—Jurassic. *Loc*.—Hill-range between the River Lokia or Loquez and the River Rodo, north-east coast.

RHYNCHONELLA (allied to) CONCINNA, J. Sowerby. *Horizon*.—Lower Oolite. [British, European, and Indian.] *Loc*.—About 3 miles north of Iraony.

Plantæ.

There are some obscure plant-remains in a lignite of uncertain age obtained from Ambavatoby on the west coast. This lignite is probably Cretaceous or Jurassic, and has been noticed "as older than Tertiary" (*Annales des Mines*, ser. 5, vol. vi. 1854, pp. 576); it has also been doubtfully referred to a Permo-Carboniferous horizon by Cortese (*op. cit. Boll. R. Com. geol. Ital.*). One of the specimens collected by Mr. Baron shows the cell-structure of *Equisetum* (*vide* W. Carruthers, F.R.S.), and another appears to be an impression of a fern.

IV.—*Note on the Structures of some Limestones from Madagascar*.—A number of limestones collected by Mr. Baron from various localities, extending from Janjina, in South-west Central Madagascar, to the northern parts of the island, have been carefully sliced and microscopically examined. They mostly present ordinary oolite structures, the granules exhibiting the usual concentric and radiate characters. Many of these limestones

* R. B. Newton; *Quart. Journ. Geol. Soc.* vol. xlv. (1889) p. 337.

contain organisms, such as foraminifera (*Cristellaria*, *Textularia*, *Margulinina*, etc.), mollusca (*Nerinea*), polyzoa, corals, etc., but the most interesting form determined is that of *Girvanella*, which appears to enter largely into the composition of these rocks. The minute tubules of this genus, which occur in spherules of a variety of sizes, are best seen in a black crystalline rock obtained from west of Ankaràmy, off the north-western coast. The *Girvanella*-spherule in this specimen is extremely large, and measures 10 mm. in diameter. Another limestone from the Antankarana province exhibits a similar structure, and, according to Mr. Wethered, resembles his species *G. pisolitica*,* from British Jurassic strata. This genus, although regarded at the time of description by Messrs. Nicholson and Etheridge, Jun., as possessing rhizopodal affinities, is now generally considered to belong to the calcareous algæ. It has a wide distribution both geographically and geologically, having been discovered in limestones ranging from Cambrian to Jurassic times, and is recorded from Britain, Europe, America, and Australia. None of the organisms mentioned, however, assist one to fix the precise age of the rocks in which they are found, although I am in favour of assigning them to the Jurassic period, and this chiefly on account of the presence of a brachiopod allied to *Rhynchonella plicatella* in one of the limestones collected from the neighbourhood of the River Lokia or Loquez, and from which many of these rock-specimens were procured.

Lastly, a microscopic examination has been made of the Cretaceous limestone forming the Ambôhimàrina hill (south of Diego Soarez), in which the specimen of *Lampadaster* was discovered. This having been proved to be largely composed of *Globigerina*, it is suggested that it be termed a *Globigerina*-limestone.

V.—List of all the recognized Fossils from Madagascar.

QUATERNARY.

Mammalia.

- Megaladapis madagascariensis*, Forsyth Major.†
Hippopotamus Lemerlei, Grandidier & Milne-Edwards.‡
 " *leptorhynchus*, Grandidier & Filhol.§
Sus sp.†
Bos sp.†
Potamochærus sp.†

Aves.

- Æpyornis cursor*, M.-Edw. & Grandidier.||
 " *Hildebrandti*, Burckhardt.¶
 " *ingens*, M.-Edw. & Grandidier.||
 " *lentus*, M.-Edw. & Grandidier.||
 " *maximus*, Geoff. St.-Hilaire.**
 " *medius*, M.-Edw. & Grandidier.||
 " *modestus*, M.-Edw. & Grandidier.||

* *Geol. Mag.* 1889, p. 196, pl. vi, figs. 10, 11.

† "On *Megaladapis madagascariensis*, an extinct gigantic Lemuroid from Madagascar; with remarks on the associated Fauna, and on its geological age;" *Phil. Trans. Roy. Soc.* vol. cxxxv. (1894) pp. 15–38, pls. v.–vii.

‡ "Sur des découvertes zoologiques faites récemment à Madagascar par M. Alfred Grandidier;" *Comptes-rendus Acad. Sci. Paris*, vol. lxxvii. (1868) p. 1165.

§ "Observations relatives aux ossements d'Hippopotames trouvés dans le marais d'Ambolisaïra à Madagascar;" *Ann. Sci. Nat. Zool.* ser. 7, vol. xvi. (1894) p. 184.

|| "Observations sur les *Æpyornis* de Madagascar;" *Comptes-rendus, Acad. Sci. Paris*, vol. cxviii. (1894) pp. 122–127.

¶ "Ueber *Æpyornis*;" *Palæontologische Abhandlungen* (Dames & Kayser); vol. vi. (1893) pp. 127–145, pls. xiii.–xvi.

** "Notice sur des ossements et des œufs trouvés à Madagascar, dans des alluvions modernes, et provenant d'un oiseau gigantesque;" *Ann. Sci. Nat.* ser. 3, vol. xiv. (1850) p. 206.

- Æpyornis Mulleri*, M.-Edw. & Grandidier.*
 „ *titan*, C. W. Andrews.†
Mullerornis agilis, }
 „ *Betsilei*, } M.-Edw. & Grandidier.*
 „ *rudis*, }

Reptilia.

- Crocodylus robustus*, Grandidier & Vaillant.‡
Testudo Grandidieri, Vaillant.§
 „ *abrupta*, Grandidier.||

Mollusca.

Gasteropoda.

- Achatina panthera*, Férussac.
 „ sp.
Buliminus (Rachis) punctatus, Anton.
Pomatias (Tropidophora) virgata, G. B. Sowerby.
 „ (*Otopoma* ?) *Grandidieri*, Crosse & Fischer.**
Planorbis trivialis, Morelet.¶
Limnæa Hovorum, Tristram.¶
Bulinus Favannei, Lamarck.
 „ *Grandidieri*, Crosse & Fischer.
 „ *subobtusatus*, Crosse & Fischer.
 „ (allied to) *crassilabris*, Gray.
Helix sp.
Pleurotoma tigrina, Lamarck.**
Vertagus recurvus, G. B. Sowerby.**

Lamellibranchiata.

- Paphia glabrata*, Gmelin.††
Lucina tigrina, Linnæus.

TERTIARY.

EOCENE.

Mollusca.

Gasteropoda.

- Neritina Schmideliana*, Chemnitz.
Terebellum (like) *obtusum*, J. de C. Sowerby.

Lamellibranchiata.

- Ostrea pelecydion*, Fischer.
 „ *Grandidieri*, Fischer.
 „ *hippocastanum*, Fischer.

* "Observations sur les *Æpyornis* de Madagascar;" *Comptes-rendus, Acad. Sci. Paris*, vol. cxviii. (1894) pp. 122-127.

† "On some remains of *Æpyornis* in the British Museum (Nat. Hist.);" *Proc. Zool. Soc.* (1891) pp. 108-123, pls. xiv. & xv.

‡ "Sur le Crocodile fossile d'Amboulintsatre (Madagascar);" *Comptes-rendus, Acad. Sci. Paris*, vol. lxxv. (1872) p. 150.

§ "Remarques complémentaires sur les Tortues gigantesques de Madagascar;" *Comptes-rendus, Acad. Sci. Paris*, vol. c. (1885) pp. 874-877.

¶ "Sur des découvertes zoologiques fait récemment à Madagascar par M. Alfred Grandidier;" *C.-r. Ac. Sci. Paris*, vol. lxxvii. (1868) p. 1156.

¶ These species were collected by the Rev. Jas. Wills, at Sirabè, in Northern Betsileo.

** Obtained by Mr. Last from Ambatomifoko, south-west coast.

†† Obtained by Mr. Baron from Fiherèhana, south-west coast.

Foraminifera.

- Alveolina oblonga*, d'Orbigny.
 „ *longa*, Czjzek.
 „ (allied to) *ovoidea*, d'Orbigny.
Nummulites Beaumonti, d'Archiac & Haime.
 „ *subbeaumonti*, de la Harpe.
 „ *acutus*, J. de C. Sowerby.
 „ *obesus*, d'Archiac & Haime.
 „ *biarritzensis*, d'Archiac & Haime.
 „ *Ramondi*, DeFrance.
 „ (allied to) *Bellardii*, d'Archiac.
 „ *perforatus*, d'Orbigny.
 „ *complanatus*, Lamarck.
Assillina spira, Roissy.
Orbitoides (allied to) *papyracea*, Boubée.
Orbitolites (?).
Rotalia (?).
Triloculina (like) *trigonula*, d'Orbigny.

SECONDARY.

CRETACEOUS.

Mollusca.

Cephalopoda.

- Nautilus Fittoni*, Sharpe. Upper Cretaceous.
Belemnites conicus, Blainville.
 „ *polygonalis*, Blainville. } Neocomian.
 „ *pistilliformis*, Blainville.
 „ *binervius*, Raspail.

Lamellibranchiata.

- Alectryonia unguolata*, Schlotheim.
 „ *pectinata*, Lamarck.
 „ *Deshayesi* (?), Fischer de Waldheim. } Upper Cretaceous.
Gryphaea vesicularis, Lamarck.
Exogyra ratisbonensis, Schlotheim. Middle Cretaceous.
Lima sp. } Neocomian.
Pecten sp.

Echinodermata.

- Lampadaster Grandidieri*, G. Cotteau. } Upper Cretaceous.
Guettaria Rocardi, G. Cotteau.

Foraminifera.

- Globigerina* sp.
Frondicularia sp.
Nodosaria sp.
Bulimina ? } Upper Cretaceous.

JURASSIC.

Reptilia.

- Steneosaurus Baroni*, R.B. Newton. Lower Oolite.

. Mollusca.

Cephalopoda.

- Belemnites Sauvanaus*, d'Orbigny.
 " *hastatus*, Blainville. }
Perisphinctes (allied to) *polygyratus*, Reinecke. } Oxfordian.
Rhyncholites (allied to) *gigantea*, d'Orbigny. }
Stephanoceras macrocephalum, Schlotheim.
 " *Parkinsoni*, J. Sowerby. Inferior Oolite.
 " *Herveyi*, J. Sowerby. Lower Oolite.
 " *calloviense*, J. Sowerby. Callovien.
Lytoceras fimbriatum, d'Orbigny. }
Phylloceras heterophyllum, J. Sowerby. } Lias.

Gasteropoda.

- Nerita Buvignieri*, Morris & Lycett.
Nerinæa (allied to) *Eudesi*, Morris & Lycett. }
 " " *Voltzi*, Deslongchamps. } Lower Oolite.
Natica " *intermedia*, Morris & Lycett. }
 " " *Verneuili*, d'Archiac. }
 " " *cincta*, Phillips. }
 " " *canaliculata*, Morris & Lycett. }
 " " *Clio*, d'Orbigny. Oxfordian.
 " *dubia*, Römer. Kimeridge.
Nerinæa leiogyra, Fischer. Jurassic.
Cerithium eribote, d'Orbigny. }
 " (like) *rusiense*, d'Orbigny. } Oxfordian.
Solarium (near to) *polygonum*, d'Archiac. }
Trochus " *Ibbetsoni*, Morris. } Great Oolite.
Alaria sp.
Eulima sp.
Trochactæonina Richardsons, R.B. Newton (sp. nov.). Lower Oolite.

Lamellibranchiata.

- Ostrea Sowerbyi*, Morris & Lycett.
Alectryonia gregaria, J. Sowerby. }
Perna mytiloides, Lamarck. }
 " *orientalis* (?), Hamlin. }
 " *latoconvexa*, R.B. Newton (sp. nov.). }
Pteroperna costatula, Deslongchamps. }
Gervillia iraonensis, R. B. Newton (sp. nov.). }
Lima iraonensis, R. B. Newton (sp. nov.). }
Modiola imbricata, J. Sowerby. }
 " *angustissima*, R. B. Newton (sp. nov.). } Lower Oolite.
Mytilus madagascariensis, R. B. Newton (sp. nov.). }
Cardium Grandidieri, R. B. Newton (sp. nov.). }
Cypricardia rostrata, J. Sowerby. }
 " (allied to) *bathonica*, d'Orbigny. }
Pseudotrapezium ventricosum, R.B. Newton (sp. nov.) }
 " *depressum*, R. B. Newton (sp. nov.). }
 " *elongatum*, R. B. Newton (sp. nov.). }
Trigonia pullus, J. de C. Sowerby. }
 " *costata*, Parkinson. }
Astarte (allied to) *angulata*, Morris & Lycett. }
 " " *depressa*, Münster (Goldfuss). }
 " " *alta*, Goldfuss. Lias. }
 " " *phyllis*, d'Orbigny. Oxfordian. }

- Astarte* (allied to) *minima*, Phillips.
 „ (?) *Baroni*, R. B. Newton.
 „ (allied to) *excavata*, J. Sowerby.
Sphæra madagascariensis, R. B. Newton.
Corbula pectinata, J. de C. Sowerby.
Pholadomya ambigua, J. Sowerby.
Ceromya concentrica, J. de C. Sowerby.
Opis (allied to) *trigonalis*, J. de C. Sowerby.
Lucina Bellona, d'Orbigny.
Myopsis dilata, Phillips.
Nucula ovata, Zieten. Lias.
- } Lower Oolite.

Brachiopoda.

- Terebratula maxillata*, J. de C. Sowerby. Lower Oolite.
Waldheimia perforata, Piette. Lias.
Rhynchonella (allied to) *variabilis*, Schlotheim.
 „ „ *plicatella*, J. de C. Sowerby } Lower Oolite.
 „ *concinna*, J. Sowerby.
 „ *obsoleta*, J. Sowerby.
 „ (allied to) *tetrahedra*, J. Sowerby. Lias & Lower Oolite.

Echinodermata.

- Pentacrinus* sp. Lias (?).
Acrosalenia sp. Lias.
Stomechinus (allied to) *bigranularis*, Lamarck. Lower Oolite.

Actinozoa.

- Montlivaltia trochoides*, M.-Edw. & Haime. Lower Oolite.
Epismilia Grandidieri, Fromentel.
Isastrœa Fischerei, Fromentel. } Lias (?).
Thamnastrœa.

Foraminifera.

- Textularia* sp.
Cristellaria sp.
Lituola ?
Marginulina sp.
Nummulites sp.
Planorbulina sp.
- } Jurassic (?).

Plantæ.

- Girvanella* sp. Calcareous Algæ (?).
Equisetum sp. Equisetaceæ. } Jurassic (?).



L.M.S. CHURCHES AND CONGREGATIONS, AND CHRISTIAN LIFE IN MADAGASCAR.

GREAT success has followed missionary work in Madagascar. One remarkable illustration of this is the fact that, in connection with the London Missionary Society's Mission alone, there are in Madagascar to-day a total of more than fourteen hundred buildings which have been erected and are used for public worship. We may call these buildings churches, chapels, or meeting-houses, or christen them by any new name we please, but the simple-minded people in Madagascar are content to call them *Tràno-fiangónana*, i.e. "Houses for gathering together in" (*tràno*, house; *fiangónana*, gathering). The same buildings are, in nine cases out of ten, used as school-houses during the week. These fourteen hundred buildings are of various sizes, the largest having ample accommodation for a thousand or even more worshippers, while not more than forty or fifty could meet in the smallest. Their merits too are various, ranging from the really beautiful Chapel Royal, and the four substantial stone Memorial Churches, with others, in the city of Antananarivo, to the simplest, frailest, and most miserable sheds, made of sticks and rushes, without either doors or windows, in which, in some small country places, the people gather, and in which simple services are held.

In order to meet the religious wants of the people, it must be admitted that there is no absolute necessity for a few out of these fourteen hundred churches connected with the London Missionary Society's Mission in Madagascar. Strength and funds have been unnecessarily expended in their erection. They are one of the unhappy results of different Missions occupying the same field. Only within the past month I expressed my surprise to some native Christians that a rude place of worship had been erected for a very limited and scattered population within reasonable distance of a church already in existence, and I asked the reason for erecting the new place. The reply I received was this: "*Raha tsy nanaovana, dia tsy maintsy ho nanaovan' ny hafa, na ny Besopy, na ny Katolika.*" i.e. "If we had not put it up, either the Norwegian Mission, or the Roman Catholic Mission, would have been sure to have built a church."

Unworthy structures as some of our churches undoubtedly still are, great advance has been made in church building in Madagascar during recent years. The building where I first attended public worship in Antananarivo in 1863, and in which I afterwards first preached to a Malagasy congregation, was a long, low, narrow shed, which for many years had been used as a Government carpenters' workshop. It was dark and dirty and infested with small vermin and rats, these latter frequently running races round the top of the low mud walls while the service was being held. This shed was succeeded, in 1866, by a modest brick building with thatched roof; and that again has been succeeded by the church which was publicly opened on the 9th May this year, and of which the account published in the *Madagascar News* says: "This

new church is constructed entirely of burnt brick and stone, and is very solidly built throughout of these materials, no sun-dried brick being used in any part of it, or of its boundary walls and gateway. It consists of a nave 78 feet long, 36 feet wide, and 27 feet high to the wall-plates, with a shallow chancel recessed 6 feet and carried by a bold pointed arch. The north front shews a lofty bell-turret with open arches, and crowned with a low zinc-roofed spirelet, 85 feet high to the finial. Two tall lancet windows occupy the central portion, and boldly projecting buttresses enclose the chief entrance and porch. Doublets of smaller windows are placed on each side of the main gable. The church is also lighted by lancet windows on each side, and by a tall triplet window in the chancel. To relieve the monotony of red brick in the interior, a large surface of wall around the windows is plastered with lime, and can be hereafter ornamented. A deep gallery, with pierced tracery front, gives accommodation for about 300 people."

The mother-church of the district at present under my charge is at Fianàrantsóa, in the Betsiléó province. The main walls of this church are built of sun-dried bricks, faced, in some of the more exposed parts, with burnt bricks, and having finishings of wrought stone. There are three entrances. The windows are of tinted cathedral glass, sent out from England. The area is seated, and at the north end of the building there is a deep gallery. The strong massive roof is covered with native-made tiles. The building will comfortably accommodate a congregation of seven or eight hundred.*

Many of the churches in the villages of the central parts of Madagascar, which have been built during the past ten years, are models of what village churches should be. With their lofty tiled or thatched roofs, they form the principal object in the villages, and are conspicuous features in the landscape, and the interiors of these village churches are often models of neatness. At a village called Ankàronòsy, about four miles from Fianarantsoa, there is a church which fairly represents a good modern village church in Madagascar. The walls of that church are built of sun-dried bricks; the wood of the roof is strong and is neatly framed and put together; the covering is grass thatch; the door is well made and is fitted with hinges, bolts, and lock; the windows have some little architectural ornamentation and are glazed with embossed glass; inside, the walls are surmounted with a suitable cornice, and both walls and cornice are carefully plastered and neatly coloured; the raised platform at the south end is faced with wrought stones, and has stone steps leading up to it, and the greater part of the area of the church has forms, on which some of the congregation sit. This building can honestly be spoken of as a model village church, and none could wish to see a more appropriate country place of worship even in England. There are many equally becoming in different parts of the island, and a few considerably better.

With some small assistance from the Mission, the natives of Madagascar connected with the London Missionary Society build their own churches, which are looked upon as the property of the people gathering

* For knowledge of how to make and how to build bricks, the Malagasy are indebted to the missionaries. It is one of many indirect benefits they have received from the missionaries who have lived and laboured among them.

in them, and not as belonging to the Mission. The cost of building a church varies much in different parts of Madagascar. Such a village church as I have referred to costs about £20 in the Betsileo province. This sum, however, does not pay for all the work, but it about meets the actual outlay in £. s. d. In building churches in this country we do not set about the work as many congregations do in England. We do not first employ an architect, and then a builder, and then skilled workmen for various parts of the building, and spend £10,000 when we have only £5,000 in hand, and so cripple ourselves for five, ten, or twenty years to come. No; in this respect I think we are wiser than some of our friends at home. In building a church in Madagascar, the people not only give a donation of money, but they also often do much of the work connected with the building with their own hands, and for this they do not look for any payment. As a rule, when a new church is to be erected, the ground is levelled, and the foundation prepared, by the congregation, who make an appointment for a certain morning, when the men, women, and children come in a body with spades and baskets and do the necessary work. An estimate is also often made of the number of bricks which will be required, and then a division is arranged—so many to Mr. So-and-so, and so many to Mrs. So-and-so, according to the social position occupied, or the supposed ability to furnish the number. These good folks then either set to work and make the bricks themselves, or undertake to be responsible for them. In the case of the tiles with which our church at Fianarantsoa is covered, the men, women, and children voluntarily carried the 24,000 tiles from the place where they were made and burnt to the building, a distance of more than a mile, and involving hundreds of journeys to and fro, and up and down a rather steep hill.

Of all the difficulties connected with church building, that of getting the heavy timbers required for the roof is the greatest in most parts of Madagascar. There are no timber-yards where the wood required can be selected and purchased. In the neighbourhood of the forests there are wood-cutters, and it is usual to make a bargain with these to cut down huge trees and to reduce them with their hatchets to within a few inches of the dimensions required. These wood-cutters, however, do nothing but fell the trees and square them roughly to your dimensions. *You* must get them to where you want them to be—fetch them, perhaps forty or fifty miles, from some valley in the dense forest, through which you must cut your way before you can advance. The difficulty is enormous, for there is no other way of getting your beams from where they lie in the forest than by actually dragging them over hills and valleys, up steep, rugged, and precipitous places, through morasses, swamps, and rivers, to the spot where you want them to be. In connection with work of this kind, however, we have often had the proverb verified that “Many hands make light work.”

To bring the heavy beams for a church from the forest, the male members of the congregation turn out on an appointed day, and carrying with them uncooked rice and cooking vessels, are prepared to camp out for the time required. On reaching the spot in the forest where the tree has been felled, they fit strong ropes or tough creepers to each end of the roughly cut beam, and then making a pull, and a strong pull, and a

pull all together, and a good many such pulls, with an indefinite number of groans and shouts, in two or three days perhaps the beam gets near its destination. Having been successfully brought thus far by the men, a message is sent forward to the village or town in which the church is building, whereupon the women also turn out and go to meet the party from the forest, and join their husbands, sons, or brothers, or sweethearts, in bringing the beam home. The excitement increases as the destination is neared, and culminates in hearty mutual congratulations, and vigorous hand-shaking and loud shouting, with strange gesticulations and furious waving of their flowing robes, when the terminus is really reached.

This is the way in which the heavy beams are often secured. Other necessary timbers are carried by two or four men on their shoulders, while lighter poles and planks are carried by one individual on the head or shoulder.

In all parts of Madagascar where I have lived and laboured, or where I have visited, the Sunday is as well observed outwardly as in any place with which I am acquainted in England or Scotland. It was not so when I first arrived in the island, for then the public markets were held, bazaars were opened, government and other business was carried on, and the ordinary occupations of the people were followed as on the other days of the week. This change in the outward observance of the Sabbath is one of the many great changes which have come over Madagascar by the blessing of God on missionary labour. Saturday is, in most places, the great washing day and bathing day, and, among the women, hair-doing day, for our religious population like to be clean and to have clean clothes (at least the outside ones) on Sunday morning. On a fine Saturday the banks of the rivers in the neighbourhood of the large towns are white with the clothes which have been washed in the streams and then spread on the bank to dry. When Sunday morning dawns, a pleasant quiet reigns throughout all the towns where Christianity has established itself and made any progress—a quiet which is broken only by the sound of the church bells or native-made trumpets (large conch-shells), and by the companies of clean-looking and neatly-dressed natives going to public service.

This is a marvellous contrast to the state of things which existed in Madagascar in days which are remembered by some who still live. Then, the few disciples of Jesus Christ were wont to leave their homes at night and cautiously to steal along by separate paths to the house of a friend they trusted; and there in the dark they sang and prayed and repeated to one another portions of God's Word, but all in a soft undertone of voice, lest they should be heard and betrayed. And then, e'er the morning broke, they returned to their homes in the same cautious quiet manner in which they had left them.

With us in Fianarantsoa the bell is first rung at 7.30 a.m. This first ringing is a sort of general reminder that it is Sunday morning. At 8.30 the bell is rung again. This ringing No. 2 is to announce that it is time to start for church. Yet once more, at 9 o'clock, the sound of the bell is heard. This ringing No. 3 is to indicate that the hour for commencing the service has arrived, and those who are not already in the church quicken their steps to get there. The need for these three ringings will be apparent when it is remembered that only

one here and another there among the natives has a time-piece, and that there are not any public clocks.* With the great majority of people in Madagascar, time is estimated by the position of the sun in the heavens, or by the length of the shadow cast by various objects.†

One thing among many others which we have sought to teach the Malagasy Christians is, that as God blesses and prospers them, they should give to Him and for the extension of His kingdom, and also for the relief of the poor and suffering; and the practical outcome of this teaching is, that at the doors of our churches there is nearly always something into which, as they enter, the people can drop their offerings. This "something" varies. It is seldom so substantial as the receptacle which meets you in every church lobby in Scotland, nor is it always so neat as many of the weekly-offering boxes which we find in churches in England. At my church in Fianarantsoa, at each of the three doors, there is a neat wooden stand, on the top of which a clean white plate is placed. These are suitable and becoming, but in some of our churches I have seen plates not so clean or white; also basins of various sizes, age, colour, and condition; also empty sardine tins, and empty jam tins, and even empty gunpowder canisters, placed at the church door to receive the weekly offerings! Education concerning what is becoming is progressive, as it is concerning a thousand other matters. Many of the Malagasy Christians never enter church on Sunday morning without making an offering, however small it may be. There are a few—first cousins perhaps of some in Christian countries—who have eyes, but do not see the plate, or who have got into the chronic condition of looking in another direction just as they are coming to the spot where the plate stands.

Our churches in Fianarantsoa are provided with comfortable seats, and so are many others in the more important towns of Madagascar, but only a limited number of the churches in the country districts are thus fitted; and where seats have been introduced, they often exhibit a variety which does not lend enchantment to the appearance of the interior of the building. They appear to have been placed in the church by different donors, each of whom had his or her idea of height, length, and pattern. The Malagasy custom in their homes is to squat on the mud floor, which they cover with neatly plaited rush mats, and that is the posture taken by the congregations in the great majority of our country places of worship; but, whether using seats, or squatting on the ground, the men always occupy one part of the building, and the women the other. Husband and wife, brother and sister, mother and son, never sit side by side in our churches. This is not altogether peculiar to religious assemblies; it is often followed in other public gatherings.

On special occasions—such as the opening of a new church, and on Christmas Day—our congregations present a much gayer appearance than at the ordinary Sunday services. At such times many of the people appear in various-coloured silk and cotton skirts and jackets and robes, and some who are wealthy enough to purchase, or to hire, such things, come decked out in European attire, the native ladies wearing hats,

* One has recently been placed in the Roman Catholic Cathedral at Fianarantsoa, and there are four in Antananarivo. I do not know of any others.

† See ANNUAL XVIII., pp. 222, 223.—EDS.

bonnets, and dresses, of both modern and antiquated fashions. There are exceptions, but as a rule, these articles of European clothing do not become the Malagasy, and I fear that their comfort is greatly interfered with by wearing them rather than the simple and becoming native *lamba*; but, as in England, so in Madagascar, it is somewhat difficult to repress female vanity in relation to dress. Some of the provincial native gentry, who are not accustomed to boots, think it becoming to wear them on these special occasions. They frequently become too irksome to be very long endured by feet unaccustomed to such restraints, and it is not uncommon to witness their quiet removal during the progress of the service, and at the close to observe the owner either carrying the smart pair of boots in his hands, or else to see them in the care of a faithful slave, to whom they have been handed to carry home.

An ordinary Sunday morning service in L.M.S. churches in Madagascar includes singing, reading the Word of God, prayer, and a sermon. From the commencement till the close of the service, the behaviour of the congregation is, as a rule, reverent and becoming, and during prayer all bow down and close their eyes; even the children cover their faces with their hands or with their loose *lamba*, and there is seldom any noise to irritate or to disturb the person who may be leading the public devotions of the people. In many churches the door is closed during prayer, and a deacon keeps guard to prevent anyone either coming in or going out. To the generally reverent and becoming behaviour of the Malagasy in church, I am obliged, however, to notice one exception. Notwithstanding all that we have said against it, many Malagasy *will* take snuff during public service. The stimulant is not taken in small pinches up the nostrils, but in good large quantities in the mouth; and as it is sooner or later ejected again, they either make the churches very dirty with their spitting, or they make use of the small spittoons with which they provide themselves. In handling the snuff-box, or in passing it to their neighbours, and in shuffling about for the spittoon, there is now and again a little to offend the differently educated taste of the missionary.

The singing is the most popular part of the service in Madagascar and is entered into very heartily. In many of our Betsileo churches the people stand during singing. This is a modern movement, for they used to squat from the moment of going into church until the service was over. The Hymn-book in general use contains 342 hymns. Some of these are purely native compositions; others have been written by the missionaries, and others again are translations or adaptations of English hymns. "When I survey the wondrous Cross," "Mothers of Salem," "Rock of Ages," "Abide with me," and many other well-known hymns have been translated and are sung at our services from time to time.

The Malagasy are very fond of singing, and during the days of persecution the Christians often solaced themselves with their hymns. How different the conditions under which they sang then, and in which they sing now! On several occasions during the persecutions the words of their sacred songs were sung with their dying breath. While the cruel flames were gathering round those who were burnt to death on the spot where the Children's Memorial Church in the capital now

stands, it is said that they sang a hymn, two verses of which may be translated :—

“There is a blessed land
Making most happy,
Never thence shall rest depart,
Nor cause of trouble come.

“The departure of this life,
Just a moment’s pang,
Is all that separates us
From that blessed land.”

The Bible is, of course, always read at our public services in Madagascar by the missionary or the native who is conducting the service, and a good proportion of the congregation follow the reading in their own Bibles. It has become a habit to bring the Bible to church, and in some of the larger congregations it is quite refreshing to hear the rustling noise, as the people turn over the pages of their Bibles or New Testaments to find the chapter which has been announced for reading. We have not yet very many books in Madagascar, and we certainly are not flooded with all sorts of doubtful literature, as are some of the countries which boast of advanced civilization and education; but if Protestant missionaries continue their labours, and the British and Foreign Bible Society is liberally supported, there is a happy prospect of Madagascar being filled with the Sacred Scriptures. In 1893 there were 20,000 Bibles and over 24,000 New Testaments received into the island—no inconsiderable number to add to the many thousands already in the hands of the people. For printing the Malagasy Scriptures and for most of the cost of translating them, we are indebted to the British and Foreign Bible Society of London; and by the generosity of that noble Society we can sell a complete Bible in Madagascar for one shilling, and a New Testament for four-pence.

The devotional part of our public services, as conducted by an average native, does not reach a very high standard. Profound reverence, consciousness of guilt, a deep sense of need, and earnest longing for blessing, are not frequently manifest in the public petitions of our people. There is also an unfortunate running in ruts among them, and with some who offer prayer in public, it is frequently easy to tell beforehand what the wants will reveal themselves to be, and to prophecy the words in which these brethren will present their petitions. On the other hand, it must be acknowledged that there are men and women among the Christians of Madagascar who really draw near to God in prayer and pray in the Spirit; some have been known to have been quite broken down while engaging in prayer, and to be obliged to give up because their utterances were choked with sobs. Native prayers sometimes strike you by their singularity; but is not that also the case now and again with English ones? The *L.M.S. Chronicle* of January, 1894, told of a good old man at a prayer meeting in England, whose petition was: “O Lord! may we not only be justified and sanctified, but may we be missionarified as well.” That sounds a little strange. Among the singular petitions which I have heard presented in Madagascar was that of a village pastor, whose prayer was; “*Aoka izahay ho araka ny teny*

voalaza ao amin' ny Romana toko viii., andininy 8," i.e. "May we be like the words which are written in Romans viii., ver. 8." It sounded rather strange for this coloured brother thus to mention the book, chapter, and verse, and I fear that his memory had failed him, for the special verse mentioned hardly points out a condition to be longed for.

The sermon is generally listened to with attention by a Malagasy congregation, whether the preacher is a native or a missionary. Many Malagasy are born orators and can speak fluently and effectively on any topic, and not a few among the Christians are intelligent and earnest preachers, who are well able to exhort and instruct a congregation. Of course the sermons preached in Madagascar on ordinary occasions have not that depth of thought which characterizes many of the discourses delivered from pulpits in England and Scotland; but then there is very little demand for such. The general intelligence of the majority of the people has not yet reached a very high standard, and in a Malagasy congregation there are always some present who cannot read, and others to whom Christianity is still a novelty. Many, even among the members of our churches, are still "babes," or if not that, they are only as boys and girls in Christ, for whom good "milk" is better food than "strong meat." Such food is served out to them every Sunday by many of the native preachers, of whom there are a large number connected with our churches. The position they occupy is almost exactly that of the village, or local, preacher at home, and for supplying the pulpits they are regularly "planned" from time to time. Some of these men are intelligent and faithful preachers. The following is the outline of a sermon to which I listened from one of them, and will, I think, confirm my opinion of them. The subject of his discourse was Salvation, from the text: "God hath not appointed us unto wrath, but to obtain salvation....." In his treatment of the subject, this native preacher had six divisions, which were: "i. Salvation is a good thing; ii. Salvation is to be found in one Person only; iii. Salvation is sufficiently abundant for all to partake of it; iv. Salvation has not to be paid for, but is a free gift; v. Salvation has not to be fetched from afar, but can be had just where you are; vi. Salvation is ours the moment we believe in Jesus Christ." Enlarging on each of these particulars, this man laid before the people very earnestly and faithfully the way of salvation through our Lord.

The aid of illustrations is often called in by our native preachers to unfold the meaning of the text, or to carry home and enforce its lessons. These illustrations vary much in their value and force and in their correctness and beauty. In the class of bad or inferior ones, the reader will probably place the following. One of our good men was preaching from the text: "Beware of false prophets, which come to you in sheep's clothing, but inwardly they are ravening wolves;" and in explaining the reference to the wolves being in "sheep's clothing," he said: "Sheep in that part of the world have their wool cut off every year, and the wind often blows at the time and scatters some of the wool about. The wolves watch their time and opportunity, and having previously rolled in sticky mud and covered their bodies with it, they come to the place where this scattered wool is lying about. They then roll in it, and the wool adhering to the sticky mud gives them

the appearance of sheep, and in this condition they craftily enter the flock as members of the fraternity and ensnare the poor sheep"!

The following is better—I venture to think really good. The preacher was wanting to influence the congregation to rid themselves of all selfishness in seeking to get to heaven, and was trying to encourage the people to use efforts to take others with them. He had recently returned from a visit to Antananarivo, and while there he had been privileged to go inside the Queen's Palace. "I went," he said, "to the Palace. How shall I tell you about it? How shall I describe what I saw? I cannot do it. It is beyond my powers of description. It was surpassingly grand. It was the height of excellence. It was the ideal of the beautiful. What mirrors! What sofas! What chairs! What ornaments! What bright decorations! On this side, and on that side, and all around, there was everything that the heart could wish for and all that the soul could desire. While I was admiring all this, a voice seemed to say to me: 'R—, this is a fine place! This is grand! This is splendid! Would you like to live here?' I seemed to reply: 'Yes; certainly, I should like to live here.'" "And then," he added, "again the same voice seemed to speak and say: 'But R—, if you were the only inhabitant of this beautiful place? If you had to live here alone? If neither your wife, nor children, nor any of your relatives or friends were with you to keep you company, would you still like to live here? Would you be happy here?'" In answer to these enquiries, he said, "I seemed passionately to exclaim: 'No, no! The beauty would not satisfy me. The grandeur would not make me glad. The ease and glittering ornaments would not make me happy. No; if I had not somebody for my companion, and if there were not others to share it with me, I should be miserable even in this beautiful Palace.'"

The services of the Malagasy preachers are, as a rule, quite voluntary; even though they may have to walk some distance to take services, they do not often receive any remuneration. With one or two exceptions, none of the native pastors are supported by the L.M.S. In the great majority of the churches the office of pastor is honorary, and for the support of themselves and their families during the week they follow their ordinary occupations. In some few places the people are beginning to understand that, in spiritual as well as in temporal things, "the labourer is worthy of his hire," and at one place well known to me the members of the church decided to give a fee of six-pence to the preacher at every service; and a laudable effort is being made in a few towns to support the pastors of the churches. After a service which I once conducted in the Chapel Royal at Antananarivo, a huge joint of raw beef and the sum of eight-pence in money were sent to me by the secretary of the church. Such is, I believe, the usual "fee" given to those who are invited to occupy the pulpit in that prominent church in the Capital city, where Malagasy Royalty and the Court assemble for public worship.

In Fianarantsoa our morning service closes about 11 o'clock, and our second Sunday service commences at 2.30 in the afternoon, and in most of its details is a repetition of that held in the morning. The interval between the morning and afternoon services is occupied first in taking the mid-day meal; and when that is over, the adults who are

willing gather in the churches for Bible classes, while the children and young people assemble in other buildings for Sunday School and religious instruction suited to their age and capacity. The Bible classes and Sunday School close at 2. 30, when, as I have said, the afternoon public services commence. At the close of the services a united prayer meeting is held in one of the three churches in rotation, which is frequently attended by four or five hundred people.

In Madagascar we do not hold evening services. Malagasy habits do not favour meetings after dark. There are no regular or paved streets in any of the towns or villages, and no public or private street lamps; so that it is not pleasant, and is sometimes dangerous, to go about after dark. The natives commence to cook the most important meal of the day soon after sunset (which is never later than a quarter to 7 o'clock), and the meal is eaten as soon as it is ready. Immediately after this they spread their mats on the floors of their huts, lie down, make themselves what they consider comfortable, and are very soon in dreamland.

The attendance at public worship in the larger towns does not vary more than at home. In those parts of Madagascar where missionary work has been carried on for many years, going to church on Sunday has become nearly as much a habit with the people as in England and Scotland.

In some of the country districts, however, truth compels me to state that the attendance at church is not always a voluntary act on the part of the still ignorant and non-christian natives. The heads of the tribes and some of the more important chiefs and others do sometimes use a little more than moral influence to get the people to church. We missionaries think their conduct in this matter mistaken zeal, but the chiefs do not always take our view, and reply to us that whatever brings the people within the sound of the Gospel, which otherwise they would not come to hear, is not only lawful but good. Even some of whom we might expect better things are a little wide of the mark in the kind of influence which they bring to bear upon the still ignorant and heathen portion of the population to get them inside the churches. About three years ago the pastor of one of our country churches called on me, and during our conversation I asked him about the congregation, the services, and the general progress of the work at the village where he lived, which is about half a day's journey from the Mission station. He replied that they were getting on first-rate, that they were doing splendidly, and that in fact there was quite a revival among them. He further said that on Sunday there were as many outside the church as there were inside, and that one preacher, with some who could sing, held a service outside the building, while the ordinary service was conducted inside. This was quite a new condition of things, and I was greatly interested and asked the pastor if he could account for it. In answer to my enquiries the good man went on to tell me, with much self-satisfaction, that they had appointed overseers in the district, and that they had made and put in force local laws to the following effect: Every adult not attending public service on the Sunday was to be fined three-pence, unless illness or any other equally satisfactory reason could be given for non-attendance; and every overseer not attending the service himself was to be fined one shilling. The good man volunteered the

further information that one half of the fines were added to the church funds, and the other half went into the overseers' pockets !

It need hardly be said that we missionaries do not approve of the use of such means, but sometimes we are powerless to prevent them in places far away from us. If any reader is inclined to be very severe in his or her criticism of the way in which some of our churches are filled, let me remind such that a similar condition of things was once found in Great Britain. In 1568 the Kirk Session of Aberdeen decreed a six-penny fine for every absence from a service ; elders and deacons to pay two shillings. Thirty years later a citizen and his wife could not stay at home on the Sabbath under a penalty of 13s. 4d ; in 1651 gentlemen were to be "damned in 6s. 8d., men in 3s. 4d., and servants in twenty pennies." Snuff-taking in church was fined 6s. 8d.

Incidents occasionally happen in connection with our Sundays and our Sunday services which will perhaps sound a little amusing to those unaccustomed to such things. Any minister in England would, I suppose, think it rather strange if, when on his way to church on Sunday morning, some good soul on the other side of the road should shout out to him and say : "Mr. So-and-so, have you got a supply of vaccine now ? because Mrs. So-and-so wants to have her child vaccinated." Such happened to me when on my way to church on Sunday morning.

The following too would, I suppose, rather shock many good folks at home. One Sunday I preached morning and evening in one of our churches in Fianarantsoa, and I hoped that serious impressions had been made and useful lessons taught. However, immediately at the close of the afternoon service, I found that thoughts on other subjects had been in the mind of at least one member of the congregation, for before I left the platform, this particular native gentleman approached me and, in a very confidential tone of voice, said : "Sir, if you have got one of those long coats which are worn in cold weather, do please allow me to buy it." On one occasion, when out in the country and speaking to the headman of the village about God and Jesus Christ, I was most unceremoniously interrupted by a woman who wanted to know if I would not give her my white umbrella, or, if I would not do that, if I was willing to exchange my good white one for her old blue one ! At the port of Tamatave we were standing singing a hymn in the middle of the public service, when a young fellow entered the building and made straight for the precentor and delivered some message. Then and there Mr. Precentor vacated his position and left the church, with the result that the singing broke off in the middle of a verse and came to an abrupt and ignominious termination.

Approval of what is said by the preacher in his sermon is frequently expressed during the delivery. This is not done by shouting "Hallelujah !" or "Amen !" as among Wesleyans and at Salvation Army gatherings, but by a click made by the tongue and lips. A volley of these clicks is no uncommon sound when the preacher happens to put the truth in a novel or striking manner.

In drawing this paper to a close I wish to refer briefly to the character of the native Christians who are connected with the churches of which I have been writing. Malagasy Christianity, like that of many other countries which have had far longer and greater advantages, is not per-

fect; but my personal opinion is that many of the Christians in Madagascar will bear favourable comparison with the average Christian found in other places. Some of them, if put in the balances, would doubtless be found wanting. In some, serious defects of moral character have been discovered. Some have excrescences more or less ugly. In only a few is faith so strong, love and devotion to Jesus Christ so deep and true, and the moral character so absolutely transparent, as we should like to see these things. Our Christians might be better than they are, but, with equal truth, it may be said that they might be far worse. When offering prayer, I once heard a Malagasy say: "O Lord, some among us make a profession of religion, and their names are on the preachers' list, but it is not from love, it is only hypocrisy." That is undeniably true of some. There is no flock, the proverb says, without one black sheep. A profession of Christianity is popular in the interior of Madagascar now-a-days; but, at the same time, we cannot but magnify the grace of God which during recent years has been and still is working among the Malagasy, and undoing much of what the Devil has been doing since Madagascar had an existence.

In estimating the character of professing Christians in Madagascar, we must bear in mind that we are now only among the first generation of such. The older fathers and mothers to-day in Madagascar were born in homes surrounded with heathen darkness, and their environments in early life were ignorance, superstition, idolatry, and sin. It is no small matter for such to leave the ways of their forefathers and to live in all respects as Christians should do. A conscience has had to be created in them in relation to many sins, and many stubborn prejudices have had to be overcome. Some of the older men and women, although they have come out of the darkness and have accepted Christianity, and are followers of Christ and members of our churches, have great difficulty in getting free of old thoughts and superstitions and in throwing off all old associations. During an itinerating journey which I took about three years ago, I met a member of one of our churches, a man very well known to me, so we stopped and exchanged greetings and had a short conversation by the hill-side. I learned that he was returning home from a distant village, where he had been to attend the funeral of a friend who had been killed in an attack made on the village by a band of robbers. The conversation led to my asking this man how his friend had been killed. Was he, I asked, shot by a musket ball, or speared? or how came it to pass that he was mortally wounded? My enquiry as to whether his friend had been killed by a musket ball immediately arrested his attention and called forth a quick reply in the negative. "Oh, no, no!" he said, "shot? shot? oh dear, no, no! It could not have been that; impossible! My friend had a charm against bullets which made him quite invulnerable to any shot which the robbers could have fired."

But while faithfulness has led me to record that little story, it is not difficult for me to give illustrations of stronger and nobler and more enlightened Christians who are connected with our churches.

Our Lord said: "By their fruits ye shall know them." We do not wish any other standard than that to be applied to the members of our churches in Madagascar. It is, we may be sure, the truest and best,

or the Lord Jesus would not have given it. What then are some of the "fruits" which we rightly look for in professing Christians? Is not honest voluntary confession of guilt, and willingness to make restitution for the past, one of them? You may find that among the Malagasy. Not very long ago one of our young men came under religious impression. He was convinced that his past life had not been all right, particularly was he conscience-stricken that, on one occasion, he had stolen money belonging to a missionary, of the value of about eight shillings. At the time I am referring to he professed penitence, and he shewed the sincerity of his repentance in this way: The missionary who was the owner of the stolen money was not on the spot, but the young man went to another missionary and, after confessing his crime, said: "I should like to do as Zacchæus did and restore four-fold, but I am not wealthy and cannot do that, but I would like to give back eight shillings more than I took;" and he handed to the missionary the sum of sixteen shillings. Such a voluntary confession of wrong-doing, and such a voluntary act of restitution, are surely "good fruit" which testify that the tree on which they are found is "good."

And is not sympathy with those who are in trial and sorrow also a mark of good Christian character? We find this among Malagasy Christians. Three years ago the Rev. R. Roberts died, after a very short illness, at a small town a long day's journey from any European, leaving a young wife and infant daughter. On the day of his death the Hova Governor of the place, who is a professed Christian, wrote a letter to the wife, who herself was ill and prostrate with grief, which translated into English reads as follows: "My heart is indeed full of sorrow when I think of you and the baby. My great desire is that you should look to Jesus Christ, Who is the Consoler we love. Even those who know not the Saviour control their grief when overtaken by trouble such as this, much more should we, who have hope, do so. I repeat what I have said, Madam: Cast this great trouble upon God. If you carry the bereavement to our dear Friend, Jesus Christ, it will verily become light. May God ever be with you and the baby, saith your relative, R—."

And is not anxiety for the spiritual welfare of relatives and friends also another "good fruit" looked for in the Christian? This too is found among the Malagasy. One of them, who had a mother and sister and mother-in-law unconverted, recently wrote thus: "My conscience was constantly making me uneasy about them, for I thought God would require their blood at my hands. Both by faithful warning and encouragement I and my brother did what we could to lead them to repentance, and we frequently considered by what means we could draw them to Jesus Christ; but all seemed in vain, and we were inclined to give up in despair. We thought about it again and decided to give up speaking about Christianity to them, and to take to praying for them. Praise God! for He has answered those prayers. By the preaching of an evangelist my mother was converted; and then, by the influence of my mother, my sister and my sister-in-law were led to throw away their idols and to trust in Jesus Christ." That Malagasy closed his communication with this brief exhortation: "Oh! Christians, cease not to pray for those you wish to see saved. For although it may look

as though your prayers are not answered, if your faith does not fail, and you continue to pray, God will yet send the answer."

And is not cheerful submission to the will of God another trait of Christian character? This also is discovered among Malagasy Christians. Within a recent date, the missionaries at Ambôhimandroso were witnesses of this in one of their teachers. This teacher's child was sick nigh unto death, and as he and his wife were worn out with watching, they were sent to lie down, having been promised to be called, should a change take place in the little one. This change came all too soon, and they were called in time to witness the going home of their little treasure. The mother silently wept, mingling her tears with those of the missionaries, whose hearts were still bleeding from a similar bereavement. The evangelist wept not, but said: "Let us sing," and struck up a hymn, the literal translation of which is something like this:—

"O Jesus, Who loves us,
How sweet to us Thy words!
Our hearts are weak and faint,
But Thou art very strong.
Thy love to us, O Jesus,
Oh, 'tis very sweet!"

I must not enlarge. My paper is perhaps already too long. In closing let me just say that, in estimating the character of native Christians in Madagascar, we should not only bear in mind the comparative newness of Christianity as the religion of the Malagasy, but we ought to remember the fact that many of the native Christians are crippled and hindered in their religious life by the evil example and influence of some of the Europeans who, for trading and other purposes, have taken up their residence in Madagascar. A short time ago one of our best and most intelligent native evangelists said to me (in Malagasy): "You," referring to the missionaries, "are like those who carry soap and wash dirty clothes to make them clean; but they," referring to some of the foreign residents in the place, "are like others who bring soot and sprinkle it on the recently washed clothes; so when can you expect the clothes to be clean?"

J. PEARSE.



THE DISEASES PREVALENT IN MADAGASCAR.

1.—GEOGRAPHY.—This important island lies between lat. $11^{\circ}57'$ and $25^{\circ}38'$ S. It extends for about 1000 miles from north to south, its greatest breadth being 350 miles, with an area of 225,000 square miles, and a population of from three to four millions. The southern and western parts of the island are comparatively level, but the interior, throughout a great part of its extent, rises into an elevated table-land from 2000 to 5000 feet above the sea. The east coast is skirted by a belt of low land of varying width. To this succeeds an undulating grassy country, bounded towards the interior by hills covered with dense forest. The central plateau is generally treeless and covered with grass, except in the valleys, where rice is cultivated. The soil on the coast is alluvial. In the interior a red soil predominates over a large part of the country. The island is watered by numerous rivers and streams, some of large size, which form considerable deltas, and these mostly fall into the sea on the west coast. On the east the streams are very numerous, but have a short course, rising as they do in the eastern range, which forms the water-parting of the greater portion of the island. There are few inland lakes, but along the east coast there are extensive lagoons, separated from the sea by land varying from a few yards to one or two miles in width. We have thus a coast zone of level or undulating country, then a forest zone, and finally the great central plateau, which is diversified by hills, some of which, as those of the Ankàratra mass, attain an elevation of 8000 to nearly 9000 feet.

2.—CLIMATOLOGY.—The only parts of the east coast for which we have meteorological observations are the French island of Ste. Marie and the port of Tamatave. Lombard gives the mean annual rainfall of the former at 2646 mm. I subjoin the mean monthly rainfall, in inches, of Tamatave, from October, 1880, to September, 1881, and from January, to September, 1882 :—

Rainfall	Jan.	Feb.	Mar.	April	May	June
	13.02	11.62	6.46	11.35	2.19	8.52
	July	Aug.	Sept.	Oct.	Nov.	Dec.
	13.45	7.41	5.21	4.18	5.20	6.33

For Diego Suarez, in the north, the temperature (Centigrade) and rainfall are given thus :—

	Jan.	Feb.	Mar.	April	May	June
6 a.m. Mean temp.	25.3	25.0	25.3	25.1	24.3	22.8
1 p.m. " "	29.8	28.9	29.1	29.4	28.7	27.6
Rainfall "	0.382	0.093	0.071	0.011	0.000	0.009
	July	Aug.	Sept.	Oct.	Nov.	Dec.
6 a.m. Mean temp.	21.6	20.6	22.3	23.9	24.5	25.2
1 p.m. " "	26.6	25.9	26.9	27.8	28.3	28.8
Rainfall "	0.028	0.000	0.000	0.006	0.008	0.119

At Nòsi-Bé, off the north-west coast, the dry season extends from April to October, the rainy season from November to March. The

temperature at Nosi-Bé is wonderfully equable, oscillating between 25° and 31° C.

For Antananarivo, the capital, on the central table-land, and at a height of nearly 5000 feet, the mean monthly temperature (F.) for 1882, and the average monthly rainfall, in inches (1881—85), are as follows:—

	Jan.	Feb.	Mar.	April	May	June
Mean temperature, F.,	72.84	69.76	67.88	67.49	64.48	60.58
Average rainfall, in.,	14.23	9.04	7.31	1.37	0.79	0.25

	July	Aug.	Sept	Oct.	Nov.	Dec.
Mean temperature, F.,	62.37	58.22	62.03	66.87	71.14	71.06
Average rainfall, in.,	0.18	0.34	0.73	3.55	5.62	9.13

3.—PATHOLOGY.—*Malaria*.—The north-eastern shores of the island near Vohimàrina are comparatively healthy, but fevers are prevalent at the new French port of Diego Suarez in the north. The more elevated parts of the south coast suffer but little from fever. Fever is endemic along the east and west coasts and in the islands near to the shore. Both on the coasts and on the islands it manifests a high degree of intensity, especially among Europeans and the Hova belonging to the central province of Imèrina, when they visit the low country. The coast tribes, however, enjoy a comparative immunity from the disease.

The French island of Ste. Marie, on the east coast, deserves the evil repute which it has obtained since its first occupation.

The forest zone is not exempt from malaria, which is met with especially in the humid valleys, such as Bèfòrona, which are more or less shut in by mountains. The valley of Angàvo, again, although at an altitude of about 3000 feet, is excessively malarious; the natives, who are here mostly of Hova origin, suffer severely from the malarial cachexia.

In the bare, open, central province of Imerina, at an elevation of 4000 to 5000 feet, as well as in the Bètsiléo country to the south, fever is not endemic; but to the west of Imerina, in the Vònizòngo district, where the elevation is less, and the country level, grassy, and in parts marshy, almost every one suffers from enlargement of the spleen. This organ is not unfrequently found to stretch across the abdomen to the right iliac crest. The malarial cachexia is very general here, while frank attacks of fever are rare. The Antsihànaka country, to the north of the capital, especially in the neighbourhood of the Alaotra Lake, is highly malarious.

Ségar,* whose experience was chiefly confined to the east coast, found the tertian type of fever to be the most common; the stages were well marked at the beginning, but became irregular in the relapses, which rapidly induced anæmia and debility. Bilious fever, he says, was characterised by violent headache, suffusion of the face, redness of the eyes, marked gastric catarrh, excessive vomiting, bilious diarrhœa, pain in the region of the liver and gall bladder, high fever with feeble morning remissions, followed by a long convalescence. He also observed the bilious hæmaturic form, and a considerable number of pernicious cases, mostly of the comatose variety. He observed two cases of mania with hallucinations in persons suffering from fever. The lymphatic glands often became enlarged. He noticed also in some

* *Arch. de méd. nav.* 1886.

cases a generalised measly eruption to accompany the fever, and urticaria was very common.

The months most charged with fever cases were January, February, and March—that is, during the rainy season—February and March being the worst, and almost equally unhealthy.

At Diego Suarez, out of 1563 cases admitted into hospital,* 1024, or 65 per cent., were for malarious diseases. The deaths occasioned by these diseases amounted to 46 per cent. of the total deaths; most of the pernicious cases were of the comatose form. The most common form of fever here is the intermittent, and the most common type of intermittent is the quotidian. The intermittent variety is most frequent in March, April, and May; the remittent in January, February, and March; but the greatest number of deaths from this form occur in March and April.

The seasonal prevalence of malarial fevers in the aggregate will be seen from the following table, which gives the number of cases of fever per 100 of patients treated in hospital from June, 1866, to December, 1867:—

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
65	67	50	35	43	66	38	71	61	92
April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
95	81	65	54	20	20	27	44	48	

The remittent is the most common form among the new arrivals. The bilious hæmaturic fever is also met with, and the cases of this fever are not limited to any season.

Nosi-Bé, on the west coast, with its rocky and clayey soil, with its climate, which, according to Barnier, "is perhaps of all countries that where the variations of temperature are the least accentuated," is nevertheless one where malaria is the predominating disease. Of 2674 cases of endemic disease treated at Nosi-Bé from 1862 to 1880, no less than 2600 were due to malaria, and 44 to liver disease, which may or may not have had a malarious origin.† The following figures show the number of cases treated, and deaths from malarial affections and diseases of the liver, in the different races:—

	Treated	Died		
	Number	Europeans and Creole	Other Race	Total
Malarious Diseases,	2600	124	9	133
Liver Diseases,	44	0	5	5

The 2600 cases of malaria are thus classified:—

	Cases Treated	Died
Malarial Fever,	2063	72
Pernicious Fever,	197	
Ictero-hæmaturic Fever,	185	49
Anæmia,	76	1
Cachexia,	91	11
Enlarged Spleen,	6	0
	2618	133

* Cartier, *Arch. de med. nav.* 1888.

† Guiôl, *Arch. de méd. nav.*

Guiôl states that at Nosi-Bé the quotidian type is the most frequent; next follows the tertian, which, however, is often consequent on the quotidian, but which in many cases is the initial form of attack. Among the pernicious forms those in which there is a determination to the cerebro-spinal centres are the most frequent; next come those cases in which there is an exaggeration of the phenomena of depression; then, those in which abdominal symptoms or excessive reaction predominate. There was only one case out of 179 of pernicious fever in which pulmonary symptoms occurred.

In order the more clearly to show the nature of the fever met with in Madagascar, I shall briefly narrate the results of a journey of a party of missionaries from Betâfo, in the interior, to Mananjara, on the east coast, at a fairly healthy season of the year.

The party numbered thirty-two in all, and consisted of eight adults and twenty-four children, of ages varying from one to sixteen years, and generally in good health. None of the children, and only four or five of the adults, had previously suffered from fever. The journey occupied seven days in the end of September and the beginning of October. The weather was dry throughout. The road for a considerable part of the way lay through forest and near to streams, but not through, or near to, any extensive swamps; and the party was not subjected to any unusual fatigue or hardship by the way.

The whole party arrived at Mananjara in good health. Four or five took ill on the third day after their arrival; some remained well for nine days, others for a period of three weeks or longer. In those that took ill three days after reaching Mananjara the period of incubation could not have exceeded three or four days, inasmuch as for the first day or two the route is through a healthy country. In most instances the fever by which the party was attacked was of a remittent or pseudo-continued form, characterised by high temperature, lasting from three to seven days, without any intermission or even marked remission, accompanied by severe bilious vomiting, and in some instances by bilious diarrhœa. During the continuance of the fever there were partial sweats, affording no relief.

In one case—that of a child four years of age—towards the end of the attack there occurred rigidity of the limbs, with pain, so that it could not bear to be touched or moved. Following upon this condition, an algid attack set in, the whole body becoming like ice; even the breath seemed cold. The algid symptoms disappeared, and along with them the fever, leaving the patient helplessly weak. After a month's respite, in this instance, intermittent fever appeared. In another case, bilious fever became converted into the intermittent form, and although the patient seemed better and had recovered his appetite, swelling of the feet and giddiness ensued. In most instances a fortnight or three weeks of freedom from fever followed the bilious remittent attack; but sooner or later intermittent fever of a tertian or irregular type supervened. In the case of one or two of the sufferers the fever began as an intermittent of the quotidian type, which later on changed into tertian. In one instance the primary form of attack was intermittent, and the relapse remittent, accompanied with diarrhœa.

After leaving Mananjara for Mauritius one of the party, an adult,

died of fever during the voyage. On reaching Mauritius, in the middle December, 1886, several of their number were anæmic and weak, with enlargement of the spleen, and continued to have frequent attacks of intermittent fever. One child had to be admitted to hospital for ulcerative stomatitis affecting the bones of the face.

To sum up, twenty out of the thirty-two who performed this short journey contracted fever in one form or another; and although only one died, many of those who had been attacked with fever and survived were left in a state of great debility and anæmia. The whole history appears to me to show that the same cause produces alike the bilious remittent and the intermittent forms of fever.

The first attacks of the fever contracted by the Hova are generally severe. Those who survive are said to be *vakin' ny tazo*, or "broken to fever," and those so broken are selected in preference to others for trading and other purposes in the low country; not that the "fever-broken" secure any immunity from relapses, but it is held, and I think justly, that the subsequent attacks in their case will be of a less dangerous character. Although the central provinces are singularly free from endemic malaria, they were visited during the years 1877, 1878, and 1879 by a remarkable epidemic of fever that deserves notice.

Dr. Güldberg, of Christiana, who resided long at the capital, witnessed this epidemic; and it is chiefly on particulars supplied by him that the following account of it is based.

During the seven years Dr. Güldberg resided at Antananarivo, he treated 1435 cases of malarial fever. Of these—

111	cases were seen in	1877.
342	" "	" 1878.
889	" "	" 1879.

1342

During the four years 1883—86 he had only met with 93 such cases, and these had doubtless been contracted either on the coast or in the Vonizongo district. The epidemic began in 1877, reached its height in 1879, but in 1880 a certain amount of malarious disease was still observed to prevail, from February to May or June, in certain low-lying districts, though after 1879 it was seldom fatal. It will be remembered that 1879 was a year when fever was widely prevalent in India and Cyprus.

The disease was generally prevalent all over the central provinces,—in the south among the Betsileo, in Imerina among the Hova, and in the north among the Sihanaka. It did not extend to the feverish districts of the east coast. From the other districts I have obtained no accounts, nor am I able to say where it originated. The information I have received makes it probable that it first appeared in the Betsileo country, to the south, and extended northwards; but this is not quite certain. The nature of the epidemic was what may generally be described as bilious remittent. At first I thought that it might have been an outbreak of recurrent fever, or of the bilious typhoid of Griesinger. This, however, does not appear to have been the case. All the medical men who witnessed it concur in regarding it as malarial.

In mild attacks it began with rigors; but in serious cases these were

absent. The fever lasted from four to seven days, was accompanied by intense headache, pains in limbs, loins, nape of neck, and pit of stomach, with bilious vomiting, and sometimes with diarrhoea, simple or sanguineous. Sub-delirium was often present. In the worst cases, jaundice occurred. There were morning remissions, with exacerbations in the afternoon or evening. During the exacerbation there were great heat of skin and hurried respiration, followed in the milder cases by sweating. This series of phenomena was repeated daily, and in a certain number of cases terminated in a frank intermittent. The fever was liable to relapse, and these relapses generally occurred about a week or a fortnight after recovery from the first attack. Such relapses were liable to recur repeatedly. Dr. Güldberg notices the frequency with which enlargement of the spleen was observed in patients who had suffered from the fever. It is not stated whether the relapses were of a remittent or of an intermittent type. In favour of the view that this epidemic, which was certainly very fatal in many districts, and respecting which it is to be regretted that no more precise information can be obtained, was malarial in its nature, may be mentioned the distinctness of the remissions, its tendency to merge into genuine intermittent fever, its repeated and irregular relapses, the consecutive enlargement of the spleen and the cachexia, its preference for low damp localities, and the recurrence of the epidemic at a certain season of the year.

Typhoid Fever is, so far as I know, rare in the low country, but it is one of the most common diseases of Imerina, where it was well known by the natives and distinguished from malarial, or country fever (*tazo an-tsaha*), as threshold fever, or *tazo an-drindrina*. As observed in the capital, typhoid fever follows its classical course.

Typhus Fever is quite unknown. *Diphtheria*, as an epidemic malady, is never seen in the central province, and I have never heard of it in the low country. I have witnessed only a few sporadic cases of membranous laryngitis.

Erysipelas is very uncommon, at least in the capital. I can scarcely recall above a few cases of the disease.

Cholera broke out, for the first time, at Nosi-bé, off the west coast, and on the adjacent mainland of Madagascar, in 1859. It was introduced from Mozambique, but it certainly could not have spread to any extent, and it has never reached the centre of the island or the east coast.

Dysentery is endemic along the coast-line. At Diego Suarez dysentery is one of the most fatal diseases, and is apparently most common from July to October. On the east coast the disease is moderately frequent, but in certain years becomes so general as to be justly regarded as epidemic. The Hova troops, during the war in 1884, encamped west Tamatave, suffered greatly from this disease. On the central tableland acute dysentery is upon the whole rare.

Diarrhoea, simple and inflammatory, and *Cholera Infantum*, are both remarkably common in the capital: the latter is only met with during the warmest months.

Smallpox (*nèndra*) has frequently spread all over the island in murderous epidemics. Whether it is really endemic in the country is doubtful. The native name for the disease points to its introduction from the

Swahili coast. Its frequent outbreaks in past years were generally connected with the introduction of slaves from Africa. *Measles* breaks out in an epidemic form at intervals of a few years. It not unfrequently assumes a severe type and carries off many victims. It often becomes complicated with bronchitis and broncho-pneumonia.

Scarlet Fever is entirely unknown. *Influenza* broke out at Antananarivo in June, July, and August, 1890. It was frequently followed by fatal pneumonia.*

Bronchial affections among adults are comparatively rare; but during the cold season acute bronchitis and broncho-pneumonia carry off many of the native children. *Pneumonia* is at least as frequent among the natives of Madagascar (in the interior) as it is in England. On the coast, from what I have observed, acute respiratory diseases are less frequent than in the interior. *Phthisis* is far from rare in Imerina, and runs a rapid course. It is by no means prevalent on the coasts. *Acute Rheumatism*, so far as I can judge, is not a common disease among the natives, although muscular and syphilitic rheumatism are very common. *Syphilitic diseases* are widely diffused, especially throughout the central province. No disease is more commonly met with than the condylomatous affection called by the natives *téty*. It appears chiefly at the mucous orifices and axillæ as mucous places. It usually affects children under the age of puberty, and when one takes the disease, it spreads to all the members of the family who have not already had it. It is followed in many instances by the constitutional symptoms proper to syphilis—periostitis, phagedænic ulcerations of the skin and mucous membranes, destruction of the soft tissues of the throat, and sometimes of the bones and cartilages of the palate and nose. The women who have suffered from the disease in childhood often suffer from abortion, or give birth to syphilitic children. As in the Lithuanian syphilis, it is rarely, if ever, possible to trace any initial hard sore, or to obtain any history of one. This form of disease is seldom propagated by sexual intercourse.

Leprosy is widely prevalent in all parts of the island with which I am acquainted, and is met with amongst all classes.

Gravel and Stone are exceedingly common in the central province, but much less so in the rest of the island. *Gout* is a common disease among the rich officers, who live well and take little exercise; but it is seldom seen amongst the common people.

Diabetes is comparatively rare, although cases are occasionally observed.

Beriberi was observed in an epidemic form at Diego Suarez in 1866 and 1867, when it caused a considerable mortality. It is not endemic in the country generally, although I have observed some three cases in the capital, which presented all the symptoms of the acute disease, and all of which ended fatally.

I have just received a report of the Medical Mission at Antananarivo for the year 1890, published by Drs. Fenn and Moss. As the pathology of the central table-land of Madagascar is highly interesting, I shall briefly analyse the figures there presented. The cases of disease treated in the Hospital, excluding surgical and obstetric cases, numbered in all 429. These may be thus classified:—

* Report of the Medical Mission for 1890, Antananarivo: 1891.

General Diseases	122	Heart Diseases (functional)	4
Diseases of the Respiratory System	100	Diseases of the Alimentary System	94
Phthisis	14	Diseases of the Liver ..	20
Heart Diseases (organic) ..	61	Diseases of the Nervous System ..	14

The percentages furnished by some of the more important diseases were:--

Pneumonia, 12.3	Dysentery, 3.0	Typhoid Fever, 1.7
Bronchitis, 8.4	Diarrhœa, 6.3	Intermittent „ 10.2
Pleurisy, 0.7	Enteritis, 0.7	Remittent „ 10.0
Organic Heart Disease, 14.2		
Acute Rheumatism, 0.47		
Chronic Rheumatism, 1.17		

The reason that syphilis does not appear in this table is that it is not generally an hospital disease, and for the same reason, diarrhœa, unless severe, would be treated in the dispensary. These figures must not, therefore, be taken as indicating the absence of the one, or the comparative rareness of the other. Indeed, syphilis, as the Report truly says, is all but universal. The extraordinary prevalence of organic heart affections cannot be explained by any corresponding prevalence of acute rheumatism. Nothing struck me more in Madagascar than the extraordinary prevalence of heart disease, of uric acid deposits in the urine, of stone in the bladder, and the prevalence of syphilitic diseases to which I have already alluded. Pneumonia, although common, does not, as a rule, furnish such a large proportion of cases as it did in 1890, when influenza was epidemic.

For an account of an epidemic of chorea in Madagascar, see *Edin. Med. Jour.* 1867 [reproduced in *ANNUAL* xiii., p. 19].

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By ANDREW DAVIDSON, M.D., F.R.C.P.Ed., etc.

ADDITIONAL NOTES ON THE DISEASES OF MADAGASCAR, BY DR. C. F. A. MOSS.

It is a difficult task indeed to be called upon to offer any comments on the elaborate study by Dr. Davidson of diseases met with in Madagascar, which forms a chapter in his work on *Geographical Pathology*. Subsequent observations only serve to corroborate the truth of the opinions he offers and to further confirm the facts he has established.

Our warrant for writing at all on the subject is supplied by an experience of six years' medical mission work in Antananarivo, during which time, though the numbers of out-patients seen by individual doctors have fallen very far below Dr. Davidson's figures, owing to the number of doctors now practising in this city, yet the number of those treated in hospital has, on the contrary, very largely increased, accommodation being offered for a larger number of in-patients by our new Hospital at Isoavinandriana.

To Dr. Davidson's account of *Malarial Fever* there is nothing to add. The subject of *Typhoid Fever*, however, is one on which a few remarks may be offered. Frequent inquiries that have been made do not

corroborate the statement that typhoid fever is what the natives know as *Tazo an-drindrina* (or *Tazon-drindrina*). The presence of so much typhoid fever has resulted in the natives adopting our name for it, consequently it is always spoken of as *Tefoidra*. But the fever known as *tazon-drindrina* appears to us to be that form of malaria, whether intermittent or remittent, which attacks natives of the capital and the surrounding neighbourhood, the fever indigenous, that is to say, to the capital, as distinguished from that in more highly malarious districts. I am always told that the fever of Vönizóngo or Ambódin' Angàvo, e.g., is not *tazon-drindrina*, but that form contracted by people who have never left the capital or visited a truly malarious district is what is known by that name. It is very easy to go thus far, but when one essays to speak of the particular features of that fever, one's difficulties begin. It would appear to be a malarial fever, sometimes intermittent, sometimes remittent in character, sometimes mild, sometimes, on the contrary, very severe and obstinate to deal with. "Capital fever" is held by many to be neither an easy form to experience nor to treat.

To return to the subject of typhoid fever. A glance at our statistics of hospital patients shows that during the 5 years from 1890 to 1894, the numbers treated were respectively 7, 8, 29, 107, 99. The monthly incidence for the three years 1892, 1893, and 1894 is as follows:—

	1892	1893	1894		1892	1893	1894
Jan.	7	17	18	July....	5	4	13
Feb.	0	17	23	Aug. ..	0	6	2
March ..	4	21	4*	Sep. : .	1	3	3
April . .	2	9	1*	Oct.	0	3	4
May	4	13	3*	Nov. . .	2	3	3
June	2	3	8	Dec. . .	2	0	8

Arguing from the figures of 1893 and 1894, one would deduce roughly that typhoid fever is a disease of the first half of the year, or rather, it is rife from January to July, but is scarcer from August to December. This corresponds broadly with the division into summer and autumn, when typhoid fever is epidemic, and winter and spring, when it is sporadic.

The onset of the rainy season in November is followed speedily by an increase in the cases of typhoid fever. To those living in Antananarivo the constant appearance of this disease causes no surprise. The city is one set on a hill; the houses are in many places so closely packed that there is only just space for one person to pass between them. The access to these houses is in most cases not by a road, but by a narrow path, winding in and out between them. On both sides of the principal roads of the capital, the houses are arranged in this fashion.

From this, two facts are obvious: the one, that the close proximity of the houses calls for a very perfect system of drainage and disposal of refuse, if the public health is to be retained; and the other, that there must be a good supply of pure water brought from a distance, if the needs of the 100,000 people of Antananarivo are to be efficiently met. Alas! it is precisely those two points that constitute the great drawbacks of the city. The uncleanly surroundings of the houses, the entire lack of any system of drainage, the universal disposal of all refuse

* The Hospital was almost closed for these months.

just where the people like to throw it, even the slaughtering of cattle on the public highways, are very potent causes of a state of chronic ill-health; and if another is wanted, it is that many of the wells and springs at the foot of the hill, from which almost the entire water-supply is derived, must inevitably be very much contaminated. No direct analysis of the water has been made, but the fact stands to reason that the water cannot be pure. Recent events, however (Nov. 1895), may now warrant the hope that before long these pressing needs may receive adequate attention.

The site of the city is also one that renders any attempt at improvement in these respects very difficult. At a few feet, in almost every part of the city, rock is reached, and the problem therefore of the drainage and water-supply of Antananarivo is one which would require very skilful engineering to solve. It is therefore hopeless to expect that so long as the town keeps on growing, while its requirements in this respects are unattended to, there will be anything but a chronic incidence of typhoid fever.

With regard to the actual course of the fever, there is little to be said. There are, as usual, different types of epidemics, sometimes severe, sometimes mild. Fortunately the majority of the cases are of the milder type. Malaria tends naturally to complicate typhoid fever, as it does everything else; and there is a type of fever on the borderland between malarial and typhoid fevers which it is exceedingly difficult to understand; combining the symptoms of both, it follows the true course of neither, and resists the ordinary treatment of each. Among other epidemics, *Small Pox*, *Measles*, and *Whooping-cough* are of frequent occurrence; but the former, though often excessively severe, is rarely seen. Lastly, *Influenza*, which has taken the round of the whole world from China to Peru, has not omitted to visit us. In the dry seasons of 1890 and 1893 there were epidemics, that in the latter year developing into a true pandemic. It resembled influenza everywhere else, alike in its effects on patient and doctor: the doctor was wanted everywhere, and almost the whole population constituted the patient. Since the epidemic of 1893, influenza has never really died out; sporadic cases occur now and then, and occasionally for a week or two there seems to be an epidemic once more. But it has not been so severe, either in its spread, or in its effect on individuals, as it was in that year.

A large number of cases of *Disease of the Respiratory Tract* come for treatment. *Croupous Pneumonia* is very common, 284 cases having been received into hospital during the five years above cited. *Cardiac complaints* are exceedingly common, being due to malaria, syphilis, and hard manual labour far more than to rheumatism.

It may be noted that there seems some tendency to increase in the number of cases of *Disease of the Nervous System*, but these do not appear very frequently, although they show a considerable variety. *Chorea* has never been seen by the writer, but it is heard of almost every year as affecting the populations of country districts more or less distant from the capital. During the early part of 1895 it was exceedingly prevalent and gave much trouble to missionaries in the country.

An account of disease in Madagascar would be very incomplete if mention were not made of the extraordinary number of cases of "stomach-ache" that flock to the out-patient Dispensaries. The people often eat very large quantities of rice, etc., at a time, and Nemesis seems to overtake them in the form of *Dyspepsia*.

Diseases of the Pelvic Organs are of great frequency and every variety.

Leprosy, to which Dr. Davidson alludes, and to which he gave special study, is not very frequently seen in the out-patient clinique, and patients suffering from it cannot be admitted to the wards of an ordinary hospital. It is, however exceedingly common, especially in certain parts of the island. Near the village of Antsfrabè the Norwegian Mission has a Leper village, where 250 inmates are accommodated. It is impossible to bestow too much praise on the humane work of this institution. When one contrasts the care and attention received by the patients there, their order, cleanliness, and employment, with the deplorable and filthy condition of the leper in his own home, one wishes such villages might be increased a hundredfold. In that district there is a very large number of lepers, 200 near one town, 100 near another, and so on. In the Leper village recently opened by the Rev. P. G. Peake of Isoavina there are at present 23 inmates; but as its advantages become better known, the numbers will doubtless increase largely. The Roman Catholics also have a Leper village near the capital. A small village has newly been erected for lepers at Fianà-rantsôa, in the founding of which Mrs. A. S. Hockett has taken the lead.

Two complications that are next to universal among patients in Madagascar are specific disease, more or less latent, and *Entozoa*.

It may be of interest to insert a statistical table showing the percentage of cases of disease of various systems treated in hospital, and also one showing the actual number of cases of certain of the more prevalent diseases:—

	1890	1891	1892	1893	1894	
Respiratory System	22.3	20.1	24.2	18.6	23.5	
Circulatory "	12.7	11.0	14.7	5.8	3.4	
Alimentary "	23.6	20.3	24.6	27.8	32.8	
Nervous "	2.7	4.5	6.7	4.7	3.8	
Gynecological Cases	21.5	22.7	22.4	12.6	20.5	
General Cases	22.5	13.6	18.4	23.8	22.0	
Pneumonia	53	45	80	78	104*	* or 11.4%
Phthisis	14	24	40	29	18	† „ 9.2%
Typhoid Fever	7	8	29	107†	97†	‡ „ 10.6%
Malarial "	48	38	67	109	100	
„ Cachexia	20	14	50	54	27	

In discussing *Surgical disorders*, the most prominent fact to notice is the comparative absence of accidents. There are here no railroads, no mines, no mills, and there is no machinery; consequently the fearful accidents inseparable from such advantages are wanting. Children may fall off a wall and sustain a fracture, or they may swallow one of the small weights used for weighing money, or they may fall among thorns. We see cases sometimes of severe injury caused during robber raids. There are cases of *Cancer* and many of *Tumours* of various descriptions, which the people are sometimes far from willing to have touched. But, on the whole, surgical complaints are less common than medical

disorders. As might have been expected, we have had this year to treat several cases of wounds received in battle. For a few days after the bombardment of the capital men were brought in, variously, and many of them severely, wounded. At the time of writing there is appearing a caricature, as it were, of these cases, little boys having injured themselves by setting a light to cartridges that were thrown away during the fight!

Diseases of the Eye are not very numerous; but epidemics of *Purulent Conjunctivitis* occur not infrequently, and *Cataract*, generally senile, is also common. In some parts of the island eyes are often destroyed by small bits of the husk of the rice-grain flying up while being threshed and adhering to the delicate tissues of the cornea. Nothing occurs here at all approaching to the great prevalence of eye-disease in China or Egypt.

Calculus is not uncommonly met with, but it has not been possible yet to examine into the question of its comparative prevalence in different districts. Undoubtedly there are many places where it is never seen, but it is too soon to say precisely where they are. *Elephantiasis* is occasionally seen in the capital; on the S. E. coast I have heard that cases of that disease are more numerous.

Diseases of the Bones and Joints are comparatively rare, with the exception of *Chronic Periostitis* from specific disease.

Experience seems to show that there are few diseases that are not to be met with in Madagascar. There is great scope for the study of such matters as the various forms of *Malarial Fever* incident to this country, but time unfortunately fails for exhaustive investigation of these conditions.

It may be well to add that this paper has been written more for the general than for the professional reader, which will account for the brief allusions made to some matters of great interest to the medical mind.

C. F. A. Moss, M.B., C.M.



MADAGASCAR IN THE YEAR 1840.

THERE recently came into my hands a small book of 41 pp., entitled "*The Persecuted Christians of Madagascar; a series of interesting Occurrences during a residence at the Capital from 1838 to 1840; extracted from the correspondence of the Rev. David Griffiths, late missionary to the Island. Addressed to his Wife, and printed at the request of her friends.* London: Cornelius Hedgman, 12 London Wall, MDCCCXLI."

I had long known all the more important works bearing on Missions in Madagascar, but this small book I had never before had an opportunity of seeing. I imagine only a small edition was printed, for circulation chiefly among the friends of the writer. The book contains three sections, and describes very graphically the efforts made by Mr. Powell, Mr. Griffiths, and Mr. Jones (or Johns*) to assist the persecuted Christians.

Mr. Powell was a doctor in the service of Queen Ranavalomanjaka, but he sympathised deeply with the persecuted Christians, and finally, in order to help some of them to escape, he gave up his position and even risked his life. He also incurred money losses in this cause, amounting, according to Mr. Griffiths' estimate, to a thousand dollars.

Mr. Griffiths gives in detail the various steps taken to help some of the oppressed and persecuted Christians to escape to Mauritius, and tells of the sad failure of these plans through the betrayal and capture of the refugees near Andrànomafàna, and of the subsequent martyrdom of nine of them. Part of this account was reprinted in *News from Afar* for February last. An interesting fact has been related to me by one who knew friends of Mr. Griffiths. The deep impression made upon the mind of Mr. Griffiths' son, who was then but a lad of 12 or 13, led to his conversion. Later on he became a minister of the Gospel, but he died while still a young man.

The main facts contained in these journals, so far as they affect the Christians, have been embodied in the accounts of the Persecution contained in *The Martyr Church* and other works. But the journals have also great value for the side-lights they incidentally throw upon the general state of the country and the extreme wretchedness of the people at the time of Mr. Griffiths' visit. To those who know Madagascar as it is to-day, and who are at times inclined (and, alas! not without reason) to denounce the prevailing corruption of the official classes, and the oppression which the common people suffer, it will be instructive to read what an eye-witness had to narrate more than half a century ago.

Mr. Jones (or Johns?) and Captain Campbell arrived at Ambàtomànga on June 18, 1840. The object of the former was to visit his old friends at the capital; and of the latter, to hire free labourers for the Association of Merchants and Planters at Mauritius: but it was not till fifteen days later (July 2) that they were allowed to enter the capital. While they were delayed at Andràisoro, Mr. Delastelle, Mr. Laborde, and Mr. Griffiths paid them a visit; and we can get at first-hand an account of how Madagascar affairs appeared to this little company of Englishmen and Frenchmen fifty-five years ago. By the aid of these journals we may, as it were, enter the native house set apart for the two visitors, and listen to the talk of the five gentlemen who met there. And as we listen, we shall probably think how like to all this has been many a conversation in Madagascar in more recent times.

* The book always has 'Jones'; but if Mr. Jones died in Mauritius on May 1, 1840, as generally stated, this must be an error in spelling, and the name should be 'Johns'.

Mr. Griffiths says: "Our conversation turned on China, and of the intentions of the French respecting it, agreeing that this country is quite ripe for a change—the people oppressed by hard servitude, oppressed by the most execrable tyrants destroyed by the dreadful *tangena*. Two or three effectual strokes would set all right! The present administration is horrible beyond description—a reign of terror and devastation! The counsellors of the Queen, Rainiharo and Rainimaharo, delight in nothing but destroying the people; or, to use their own motto: "*Ataovy manify izy, ka baboy ny fananany sy ny vady aman-janany!*" ("Thin them, and take their property, and make slaves of their wives and children!") They are impoverishing the country and have become drunken with power!—they swim in blood and roll in riches and spoils of the harmless and innocent! Rainimaharo is the Robespierre of Madagascar."

"The people of Madagascar were never in such an oppressed condition as at present. Their perpetual wars, the *tsitaliainga* (or silver spear), the corrupt administration of justice, together with the heavy yoke of bondage on both the military and *bôrizano* (civilians), are the ordinary machines of daily destruction used in this country."

Later on, after describing the bitter persecution to which the Christians were subjected, Mr. Griffiths continues: "Neither is it only the Christians who suffer under this tyrannical government, but every class of the people. At the present time there are from seven hundred to a thousand officers in trouble from various causes, and the number is daily increasing; their judgment is to come. Some are accused of taking bribes to allow people to leave the army and become *bôrizano*, or civilians; others, of extorting money on different occasions—when they go to war, bury their friends, etc. Some will, no doubt, be put to death, others have the ordeal, and others are fined and reduced in rank and honour; yet this has no effect in diminishing the spirit of disaffection which everywhere abounds."

When Mr. Griffiths had finally left Madagascar, he says: "On our way to Ifénoarivo a spot was pointed out to me where four Bêtsimisâraka were put to death for attempting to escape out of the island. They were caught going away in a canoe; a hole was immediately dug, in which they were placed, their heads being confined in sacks, and boiling water and melted tallow poured on them till they ceased to breathe."

The greed of the high officers is thus described: "The two first officers of the land think of nothing but filling their coffers from fines, bribery, and confiscations. I informed you that there were a thousand officers in trouble, from the rank of general to corporal; some of whom were in irons at the time I left, others imprisoned, and some, no doubt, by this time have been put to death. The ordeal has been administered to many, and fines levied on every hand."

Mr. Griffiths concludes his journal with a graphic account of the general misery and discontent in all parts of the island. Here are his words:—

"How is Madagascar paralysed from north to south, from east to west! The provinces of Androy, Fierénana, Imba (?), Tsienimbalála, and Ambôngo, and part of Vangaindrano, would rather die than submit to the iron yoke of Ranavalomanjaka. 'If we submit,' say they, 'the men will be put to death, the women and children made slaves, and all our property confiscated; and if we do not submit, it will be the same. We will therefore oppose them to the last!'

"The provinces of Ménabé, Ibôina, and Antsihànaka have revolted, and the Queen's soldiers cannot subjugate them, for they would rather die than have the *tangena* administered. They say: 'Radama (the late king) promised not to judge us by the *tangena*, but Ranavalomanjaka has changed the laws, therefore we will not be her subjects, but her enemies!' Moreover, they venture to utter the language of open defiance: 'Prepare

of soldiers; buy muskets, and powder, and cannon, and battle and not stop till we come to Antanánarivo! The people in the interior of the island are oppressed to the extreme, and civilians being compelled to work at a moment's notice, — the most cruel system of slavery ever known! All the people in the inland provinces, and on the eastern coast from Vohimàrina to Fort Dauphin, have not a week that they can call their own to cultivate their ground or provide for their families, but are required to engage in some government service or other, as tilling the ground, felling timber, making and carrying charcoal, collecting wax and gum copal, etc., and carrying hides from the interior to Tamatave. All the tailors have their service exacted in the same manner by the Government without any remuneration. The people often remark, with feelings of stoical indifference, 'We shall not teach our children *any thing*, for the more they know, the harder will be their service!'

"The greatest crime in Madagascar is to possess riches, for wealth uniformly becomes an object of the government cupidity, and its owners are accused of sorcery to deprive them of it. The ordeal in these cases is administered with murderous effect. If the poor have a lawsuit, they generally lose their cause, as they cannot bribe the officers and judges; they are thus condemned, reduced to perpetual slavery, and sold in the market like cattle. On an average, twenty or thirty are reduced to slavery at the capital every week, and numbers killed by the *tangena*. Twenty thousand of the people on the south-east coast alone have been reduced to slavery and sold by the authorities of Mananjàra.

"The bearers of the *tsitalainga*, or silver spear, and the officers who administer the *tangena*, are going out of the capital daily in every direction to plunder the people, returning with a large booty of bullocks, etc. It is a common saying, when a drove of bullocks is brought to the capital for sale, '*Oh! the tsitalainga and the tangena have been at work!*' Madagascar is one of the finest countries in the world and inhabited by a clever race of people, but it will become depopulated and a mere desert very soon, if the present Queen continues to reign! *Without doubt a million of people have been destroyed and reduced to slavery during her tyrannical sway!*'

Such was Madagascar in the year 1840, as looked on by one who knew the people and their language and was well able to form a just estimate of the miseries under which they were suffering. The picture is drawn with great power, and the shades are indeed deep. But who shall say the writer has been guilty of exaggeration? Perhaps the estimate contained in the concluding sentence may be too high; but there is, to those who know Madagascar, a ring of truth and genuineness in Mr. Griffiths' statements that win for them our entire confidence. Thank God, even the darkest picture we could draw to-day of the corruption and oppression that exist would by comparison be light. There have been many moderating and humanising influences at work since 1840. But how clearly does Mr. Griffiths expose the evils of the *fanompòanu* system; and few will dissent from his designation of it as "the most cruel system of slavery ever known." Whilst this system continues, many of the evils that press so heavily on the common people of Madagascar and keep them back from any true political progress will continue to exist.

Another reflection occurs to me as I read Mr. Griffiths' denunciation of the oppression he witnessed, viz. that severely as the Christians suffered, they were, after all, numerically speaking, a mere handful among the myriad sufferers from the cruel and tyrannical rule of those dark days; for the iron yoke of Queen Ranavalona I. pressed heavily upon all classes of the people, and to all of them alike was her long reign a time of darkness and distress.

WILLIAM E. COUSINS.

THE RELATIONSHIP BETWEEN THE MALAGASY AND MALAYAN LANGUAGES.

(Concluded from ANNUAL XVIII.)

CHAPTER IV.

PARTS OF SPEECH.

GENERAL.

60. **T**HE Malayo-polynesian languages are isolating. In the Malagasy and Malayan a stem may be joined to the noun, just as in the Indo-germanic, for example, the *nomen agentis*. In the verb the Malagasy has stems to denote voice, tense, and mood, while the Malayan only has the first of these. The Malagasy has also derivative elements for adjectives, whilst the Malayan has none. Inflection occurs in the Malagasy in the personal pronouns, the *casus rectus* being different from the *casus obliquus*, exactly as in the English. The Malayan has also traces of case-signs in the personal pronouns. Both languages have traces of a sign for the vocative in the nouns, and for number in the pronouns and adverbs of place. The Malagasy also expresses tense in the adverb of place. A further formative is reduplication both in Malagasy and Malayan; also the position of the word in the sentence. Among auxiliary words the prepositions can scarcely be said to play a prominent rôle, the possessive suffixes play a much more important one. In Malagasy the placing or omission of the article has a formative signification. Both languages also use concrete words as formatives, e.g. the word *dia* in Malagasy, meaning step, is also a copulative conjunction; in Malayan *tempat*, place, is also a relative pronoun, and *békas*, trace or track, is also a causal conjunction.

THE VERB.

61. Neither Malagasy nor Malayan has a copula; the Malagasy says, for example, *mamy ny fary*=sweet the sugarcane; the Malayan says, *rumah-nja kétéjil*=his house small. In both languages verbs implying motion are often omitted, e.g. Malagasy *ny nenina tsy aloha, fa aoriana*=regret (comes) not before, but after; Malayan *ija sudah ka-kampon*, he was (*sudah*=sign of the past) to the Kampong (gone).

62. Both in Malagasy and Malayan bare roots can act as verbs, e.g. Malagasy *tonga va ny olona*?=have the people arrived? (*tonga*=arrived, p. part; *va*=word of interrogation); Malayan *anaq-nja djadi radja*, his son becomes king.

63. In both languages the possessive suffix may be joined to a verbal root in order to signify the agent, e.g. Malagasy *hita-ko tsara ny kintana*, I see the stars well (*hita*, root of to see); Malayan *udjar-nja*, he speaks.

64. For the active voice the Malagasy has the formatives *ma-*, *ma+* nasal-, *mana-*, *manka-*, *mi-*, *miha-*, *maha-*, *mian-*. —*amp-*, and —*if-*; the Malayan has *mé-*, *mé+* nasal-, *bér-*, *pér-*, —*kan-*, —*i-*.

Of these formatives the Malagasy *ma -*, *ma + nasal -*, *mana -*, *manka -*, *mi -*, and the Malayan *mé -*, *mé + nasal -*, form a group. They are, on the one hand, etymologically related, and, on the other hand, they all give to the verb a meaning pretty much the same, forming the dative without any special colouring. Over the choice of the prefix usage decides in part, and in part there are definite rules to follow. Matter for comparison between the Malayan and the Malagasy is presented especially by the way in which *ma + nasal = mé + nasal* is joined to the root, for example: when the Malagasy prefix *ma + nasal*, or the Malayan prefix *mé + nasal*, is joined to the root, the first letter disappears if it be a mute; but other syllables either suffer no change, or the usual Sandhi laws come into play, or else, instead of *ma + nasal*, the Malagasy prefix *ma* and the Malayan *mé* are used.

(1) *The Root with a Mute as initial Letter.*

In Malagasy *k*, *t* (also *ts*, *tr*), *p*, *f*, *s*, disappear, and an *n* or *m* occupies their place. In Malayan *k*, *t*, *p*, *s*, disappear, and the corresponding nasal takes their place (*tj* remains, disappearing only in a very few instances). Malagasy examples: *manaikitra*, to bite, from *kaikitra*; *manambatra*, to join, from *tambatra*; *mamofotra*, to blow, from *fofotra*; *manaly*, to roast, from *saly*. Malayan examples: *ménarai*, to place together (or compare ?), from *karañ*; *ménambat*, to join, from *tambat*; *mémuput*, to blow, from *puput*; *ménjalai*, to smoke, to fumigate, from *salai*; *mént-jéhari*, to seek, from *tjéhari*; *ménjapai*, and *méntjapai*, to grasp.

(2) *The Root with a Medial as initial Letter.*

In Malagasy *d*, *g*, *j*, *b* (and *v*, which must be here included, as it corresponds to the Malayan *b*) generally remain, but sometimes disappear like those in (1). Examples: *mandio*, to clean, from *dio* [this word is rarely or never used, *manadio* taking its place. — R.B.]; *mangehy*, to squeeze or tie firmly, from *gehy*; *manjanona*, to stop, from *janona*; *mambitsibitsika*, to whisper, from *bitsika*; *mamabo*, to take captive, from *babo*. *V* is mostly omitted like those in (1), e.g. *mamivitra*, to pick up with the thumb and finger, from *vivitra*. The *v* occasionally becomes *b*, as *mamboatra*, to arrange, prepare, from *voatra*; *mambohitra* (as well as *mamo-hitra*), to blow up, from *vohitra*, a hill. In Malayan *b*, *d*, *dj*, *g*, remain, e.g. *mémbisig*, to whisper, from *bisig*. They disappear like those in (1) only in very rare cases, e.g. *ménénar*, as well as *méndénar*, to hear, from *dénar*.

(3) *The Root with a Nasal as initial Letter.*

Malagasy roots with an *n* as initial letter have the prefix *ma*, roots with *m* as initial letter have the prefix *mana*. The Malayan in these cases has *mé*. Malagasy examples: *manamamy*, to sweeten, from *mamy*; *maneno*, to sound, to sing, from *neno*; Malayan examples: *ménjanji*, to sing, from *njanji*; *ménérui*, to growl, from *nerui*.

(4) *The Root with a Liquid as initial Letter* (Malagasy *l* and *r*; Malayan *l*, *r*, *w*, *j*).

The Malagasy has in this case the prefix *ma + nasal*, which are joined to the root according to the ordinary Sandhi laws. The Malayan has the prefix *mé*. Malagasy examples: *manda*, to deny, from *la*; *mandrahaka*, to branch out, from *rahaka*; Malayan examples: *méréndan*, to roast, from *réndan*; *mélihat*, to see, from *lihat*. Only the noun *pén-lihat*, one who sees, has the nasal like the Malagasy.

(5) *The Root with a Vowel as initial Letter.*

In this case the Malagasy attaches the prefix *man*, the Malayan *mén*, e.g. *manasa = ménasah*, to sharpen, to grind, from the root *asa = asah*.

(6) *The Root with h as initial Letter.*

The Malagasy *h* never corresponds to the Malayan *h*, but either to the Malayan *k* or *g*. When it corresponds to *k*, it is treated like the letters mentioned under (1), that is, it disappears, e.g. *manoditra*, to skin, from *hoditra = kulit*; *manamory*, to steer, from *hamory = kémudi*; *manodidina*

to surround, from *hodidina=kuliliñ*. When *h* corresponds with the Malayan *g*, it is treated according to (2), i.e. it appears as *g*, for instance: *mangady*, to dig, from *hady=gali*; *mangorona*, to roll up, from *horona=guluñ*; *mangirika*, to make a hole, from *hirika=gereq*. But as the instances in which the Malagasy *h* corresponds with the Malayan *k* are much more numerous than those in which it corresponds with the Malayan *g*, several Malagasy roots with an initial *h* (=Malayan *g*) follow the analogy of the former. Thus from *hodina=guliñ*, to revolve, is formed not *mangodina*, but *manodina*; from *hantona=gantuñ*, to hang up, is formed *manantona*. The root *hitikitika=gilitiq* (=g [él] itiq), which forms both *mangitikitika* and *manitikitika*, to tickle, is instructive. The first of these is the orthographically correct one, the latter is the one formed by analogy, as above. In Malayan the roots having an initial *h* are treated according to (5), the *ñ* being preserved or dropped, thus, from *hadap* we get the two forms *ménhadap* and *ménadap*, to appear before one.

In regard to the other formatives, the two languages scarcely offer matter for comparison. On the other hand, they possess remnants of other inflectional forms of the active verb, which were in existence in the original Malayo-polynesian stock. Thus, both Malagasy and Malayan show traces of a verbal form in which, in the place of the initial mutes *p*, *k*, *t*, the corresponding nasal is attached without *ma=mé*. This is a form of inflection which is peculiar to the Javanese. Examples: Malayan *mintā*, to entreat, from the root *pinta*; Malagasy *meja*, well formed, from *feja*, a good figure. [The words *meja* and *feja*, although in the dictionary, seem to be unknown in Imerina; they may perhaps be provincial.—R.B.]

In both languages the infix *um* is still present; for example: Malagasy *homana*, to eat, from the root *hana*; *homehy*, to laugh, from *hehy*; *tomany*, to cry, from *tany=tanis*; also Malayan *gumilañ*, to glance, from *gilaiñ*; *gumitar*, to tremble, from *gitar*. With the Malayan *bér* is related the Malagasy *va* in *vaventy*, great, from *venty*, volume, substance.

Near the Malagasy *onotra*, to pluck, stands the Malayan *puñut*; near the Malagasy *indrana*, to lend, stands *pindjam*. Has the Malayan here a prefix, or have the two pairs nothing in common?

The prefixes given at the beginning of § 64 (not taking the *mé* group into account) have very definite functions. Thus the Malagasy *amp* is causative, e.g. *miteny*, to speak, *mampiteny*, to cause to speak; *miha* is progressive, e.g. *tsara*, good, *mihatsara*, to become more and more good, etc. The Malayan *kan* is causative, or points to the indirect object (see § 70); *bér* is intransitive, or expresses a condition, etc.

In Malagasy there frequently coexist verbs with the prefixes *ma*+nasal and *mi*, in Malayan *mé*+nasal and *bér*, as transitive and intransitive forms, e.g. *manantona=méngantuñ*, to hang (something), *mihantona=bérgantuñ*, to hang (be hanging); in the same way, from *hodina=guliñ*, to revolve, we have *manodina=ménguliñ*, and *mihodina=bérguliñ*.

65. The Malagasy has for the passive the formative prefixes *a*, *tafa*, *voa*, the affixes *ana*, *ina*, and the infix—*in*—; to these may be added *ta* (prefix). The Malayan has the prefixes *di*, *ter*, *ka*, and the affix *an*, together with *kéna*, which stands separated from the word.

When in Malagasy *ana* or *ina* is affixed, the last letter of the root is variously changed (see § 44 and § 57). To the Malagasy passive with the prefix *a* corresponds the Malayan with *di*, e.g. *atambatra=ditambat*, joined together. The *a* and *di* are still extant prepositions, the latter in Tiam and Malayan, the former in Kawi. The Malayan *dirantai*, chained, primarily signifies "in chains;" *atambatra* primarily means "in binding or joining," or something of the kind. Other Malayo-polynesian languages use exactly in the same way the prefix *i*, which is identical with the Malagasy preposition *i* in such words as *ivofo*, at the back.

To the Malagasy prefix *tafa* (e.g. *tafavory*, assembled, from the root *vory*, to assemble) corresponds the Malayan combination *téper*, e.g. *tépér-oleh*, to receive, to obtain, from the root *oleh*.

The Malayan affix *an*, corresponding to the Malagasy *ana*, *ina*, is never used alone, but only when *ka* is prefixed to the root. We find this *ka-an* also in the noun, and one and the same word is often both verb and noun, thus, *kapudjian* (root *pudji*) signifies both "to be praised" and "praiseworthiness."

Kéna (an independent word, with the meaning, *affici*, *affectus*, -a, -um), serves in Malayan to form passives, especially in words which express something repugnant, e.g. *kéna tipu*, to be deceived, from *tipu*, deceit, to deceive. The Dayak uses *buah* in such a case, which has the same meaning as *kéna*, with which the Malagasy *voa* is identical, though *voa* has become a firmly adhesive prefix, and its employment suffers no restriction as in the Malayan and Dayak, e.g. *voavono*, killed; *voavoha*, opened; *voasoratra* written.

Corresponding with the Malayan prefix *tér** (e.g. *tirsurat*, written) is the Malagasy prefix *ta*, which is found in a few words, e.g. *talanjona*, astonished, from the root *lanjona*; *taboroaka*, bored through, from *boroaka*, a hole.

The Malagasy infix *in* (e.g. *zinara*, shared, from the root *zara*) has nothing corresponding to it in Malayan. [But see "The 'Infix' in Malagasy: a Malayan Feature" by Mr. Dahle in *ANNUAL II.*, p. 172, 2nd edit.—R.B.] The Malayan has, however, one word with what is probably this infix, but it is a noun, viz. *binatañ*, an animal. I may mention, however, in passing that the infix *in* is in Malagasy not absolutely confined to verbs, for we have the form *nginamba*, perhaps, as well as the synonymous *ngamba*.

66. The relative voice in Malagasy is a mixture of the active and the passive forms; e.g. from the root *sasa*, to wash, we get the active *manasa*, the passive *sasana*, and the relative *anasana*; from *laza*, to tell, we get the active *milaza*, the passive *lazaina*, and the relative *ilazana*. The proper employment of the relative is one of the most difficult parts of Malagasy syntax. For an instance of its use see § 70.

67. The Malagasy forms its tenses by an inflection in the word itself, the Malayan by means of auxiliaries. In Malayan *sudah*, finished, and *telah* (for its meaning see below) are used to signify the past tense, and *hindaq* or *mau*, to will, or the preposition *akan*, to, are used to signify the future. The Malagasy has a formative beginning with *n* for the past tense, and a formative beginning with *h* for the future tense. These occur as follows:—

(1) If the verbal form begins with a consonant, a *no* is prefixed to form the past tense and a *ho* to form the future, e.g. *lazaina*, being related or told, is in the past tense *nolazaina*, and in the future *holazaina*. Formerly the tense sign and the verbal form were printed separately, thus, *no lazaina*, *ho lazaina*.

(2) If the verbal form commences with a vowel, an *n* is prefixed to form the past and an *h* to form the future, e.g. the present tense of the passive form *tao*, to make, is *atao*, the past tense *natao*, and the future *hatao*.

(3) If the verbal form has a prefix beginning with *m*, an *n* takes its place to form the past tense, and an *h* to form the future, e.g. from the root *jery*, to look at, is formed the present tense of the active *mijery*, the past *nijery*, and the future *hijery*.

In appearance the manner of Malagasy tense formation is very different from that of the Malayan, but as a matter of fact there is a striking similarity between them. The Malagasy *no* is actually an emphatic particle like the

* The correspondence is not perfect. The Malagasy has no prefix with an *r*. That in *ta* and other prefixes an *r* has disappeared (see § 53) appears to me very doubtful.

Malayan *lah*, both words being employed in this way. Now *tilah* is only an extension of *lah*. But emphasis points to something perfected, finished, and it is easy to see how from this *no* and *telah* have come to express the past tense.

[This statement seems to me a very questionable one. It appears to be based on the fact of *no*, as an independent word, being called in Mr. Cousins's Grammar, to which our author is largely indebted, an "emphatic or discriminative particle." The word "emphatic," however, only imperfectly expresses the idea conveyed by *no*. It may, in nearly all cases, be translated by "is he who," "is that which," "are those who," etc., e.g. *Ity lalana ity no nalehany*, this road *is that which* he followed. *No* therefore seems to be a pronoun. It *never* conveys the idea of anything "perfected or finished," but simply gives an exclusive sense to the preceding subject. It is therefore highly unlikely that it is connected with the formative *no* attached to verbs to change them into the past tense. Personally I should call it an exclusive particle or pronoun. It has, however, a few exceptional uses, which nevertheless lend no weight to the statement of our author.—R.B.]

The Malagasy *ho* is a preposition, which agrees precisely in signification with the Malayan *akan*. We must imagine to ourselves the process of development in such a way that *no* and *ho* have become attached to the verbal form as proclitic particles and have lost their own individuality. A further step in the process is apparent when the verb begins with a vowel, in which case actual fusion sets in, e.g. from *no omena* (from *ome*, to give) appears *nomena*; from *ho omena* appears *homena*. The combination of these particles with verbal forms beginning with *m* took place last of all, as shown above in (3).

68. The Malagasy also forms a mood, the Imperative, by a change in the word itself, viz. by means of the endings *a*, *o*, or *y*, e.g. *miantsoa*, call, from *miantso*, to call.

THE NOUN.

69. The formative elements which form nouns from roots show great agreement in Malagasy and Malayan. They are the following:—

- (1) The prefix *ha=ka*.
- (2) The prefix *fa=pé* or *fa*+nasal=*pé*+nasal, corresponding with the verbal forms in *ma=mé* or *ma*+nasal=*mé*+nasal (§ 64).
- (3) The suffix *ana=an*.
- (4) The combination of (1) and (3) and also of (2) and (3).

In addition thereto there is in Malagasy a prefix *fi*, either alone or combined with the suffix *ana*, corresponding to the verbs with the prefix *mi*. In Malayan there is a prefix *per*, either alone or combined with the suffix *an*, corresponding to the verbs with the prefix *ber*. Finally the Malagasy has also a prefix *mpi* or *mpa*.

Both the Malagasy and the Malayan have other means of forming nouns which, however, only occur in a few instances, thus, there is the Malayan infix *il*, e.g. *selaput*, a membrane or pellicle which covers something, from *saput*, to cover; *telundjuq*, forefinger, from *tundjuq*, to point to. In Malagasy there is the prefix *an*, e.g. *anjara*, share, from *zara*, to divide; *antsipy*, the small stone used in a certain game, from *tsipy*, to throw; also the prefix *ki*, e.g. *kifafa*, besom, from *fafa*, to sweep. This *ki* appears to be from the Suaheli. The Malagasy has taken over from this language words like *kifongo*, button, *kitamby*, a garment; and this prefix *ki* has been added to native roots.

The prefix *ha=ka* forms abstract nouns in Malagasy, but these are not specially numerous. Examples: *hatsara*, goodness, from *tsara*, good;

halalina, depth, from *lalina*, deep. The instances are fewer in Malayan. Examples: *kahéndag*, desire, from *héndag*, to wish; *kakasih*, a lover (with strikingly concrete meaning), from *kasih*, to love; *katahu*, from *tahu*, to know, which, however, only appears in a longer form.

The prefix with $f=p$ (Malagasy *fa*, *fa*+nasal, *fi*; Malayan *pé*, *pé*+nasal, *pér*) occurs in both languages very often and performs various functions. It forms, for instance, *nomina agentis*, e.g. Malagasy *fandainga*, a habitual liar, from the root *lainga*, active verb *mandainga*, to lie; Malayan *pénjamun*, a robber, from *samun*, active verb *ménjamun*, to rob; *fane-nitra=pénjenat*, a wasp. It forms also instrumental nouns, as *fungady=pén-galy*, a spade, from *hady=gali*. These forms further signify what we express by the substantival infinitive, thus, *fandeha*, the to go [this rather means the *mode* of going, R.B.], from *leha*, active verb *mandeha*, to go; Malayan *pénuluñ*, the to help, from *tuluñ*, active verb *ménuluñ*, to help.

The suffix *an* is frequent in Malayan, but *ana* is rare in Malagasy. It forms concrete and abstract nouns, e.g. Malagasy *vonoana*, murder, from *vono*, to kill; Malayan *balasan*, answer, from *balas*, to answer; *tetezana=titian*, a bridge, from *tety=titi*, to go over; *horonana=guluñan*, a roll.

The combination *ha+ana=ka+an* is equally frequent in both languages; it is added both to verbs and adjectives, forming abstract nouns, e.g. Malagasy *havelomana*, existence, from *velona* (meaning the same as the Malayan *kaadaan*); *habiazana=kabésaran*, greatness; *hafanana=kapanasan*, warmth; *hamorana=kamurahan*, kindness.

The combination of the prefix *fa=pé*, *fa*+nasal=*pé*+nasal, *fa*+suffix *ana=pér*+suffix *an*, yields abstract nouns corresponding to the German forms in *ung* [=Engl. *ing*], *heit* [=Engl. *head* or *hood*], *schaft* [=Engl. *ship*], and also gives the idea of place to the noun, or turns abstract nouns into concrete ones, e.g. Malagasy *fiavoriana*, place of assembly, from *vory*, active verb *mivory*, to assemble; *fandiovana*, cleansing, from *dio*, active verb *mandio*, to purify [*manadio* is generally used instead of *mandio*.—R.B.]; Malayan *pérkataan*, a word, recital, from *kata*, active verb *bérkata*, to speak, relate; *pélabuhan*, anchorage, from *labuh*, to anchor; Malagasy *fandrarana*=Malayan *péludahan*, a spittoon, from *rora=ludah*, to spit.

The Malagasy prefixes *mpa*, *mpa*+nasal, and *mpi*, form *nomina agentis*, thus, *mpiasa*, a worker, from *asa*, active verb *miasa*, to work. May there be here a connection with the Malayo-polynesian *mpu*, a master?

70. Some words expressive of relationship in Malayan form vocatives, thus, *anag*, a child, is in the vocative *anah*, and *bapa*, a father, is *bapan*. So with the Malagasy; thus, *rankizy*, O child, from *ankizy*; *ranabavy*, O sister, from *anabavy*, a (brother's) sister. The two languages are therefore quite different in this respect, for in the Malagasy the vocative is formed by the intimate attachment of the particle *ry* to the noun, but that this should occur only in the cases where the Malayan has a vocative is remarkable.

The genitive is indicated by its position after the noun. In Malagasy the possessive suffix must, and in Malayan may, come between the two, thus, *the feet of the oxen* is in Malagasy *ny tongotry ny omby* (*tongotry=tongotra*+possessive, see § 58, v.; *ny*=def. article); in Malayan it is *kaki lémbu*, or *kaki-nja lémbu*.

The agent of a passive verb is indicated in the same way as the genitive, e.g. Malagasy *hazeran' ny ranonorana ny manda*, the rampart (= *manda*) will be thrown down by the rain (*hazera* is fut. pass. of *zera*; *hazeran'*=*hazerany*, the *ny* being the possessive=Malayan *nja*; the *ny* before *ranonorana* is the article=Malayan *ini* or *ni*); Malayan *dilihat radja*, or *dilihat-nja radja*, seen by the king.

The dative is indicated by prepositions. Both the Malagasy and the Malayan, however, possess a verbal form after which the preposition is omitted, the verbal form itself pointing to a dative. This is in Malagasy

the verb in the relative voice, in the Malayan it is the verb with the suffix *kan*. These two verbal forms have nothing in common as to their etymological meaning. Examples: Malagasy *amonoy akoho ny vahiny*, kill a fowl for the stranger (*amonoy* is relative imperative from *vono*; *akoho* fowl; *ny*, def. art.; *vahiny*, stranger); Malayan *buruh itu pergi menjéharikan radja buwah-buwahan*, the bird went to seek (for) the king fruits.

The possessive may also express a dative relationship, thus, Malagasy *maminao*, sweet to thee; Malayan *laig-mu*, suitable for thee.

The accusative is shown by its position after the verb, but in both languages it may be preceded by a preposition (Malagasy *an*-, Malayan *akan*); e.g. Malagasy *aza matahotra hampakatra an' i Maria vadinao*, fear not to take unto thee Mary thy wife; Malayan *ménurankan martabat-nja*, or *ménurankan akan martabat-nja*, be humble his rank. What is spoken of in Greek as the accusative of relation ("limiting accusative") is indicated in Malagasy and Malayan by placing the noun after the adjective. The article is then omitted in Malagasy, whilst in Malayan the possessive is added to the noun. Examples: Malagasy *ary Josefa dia bikana sady tsara tarehy*, and Joseph was well-shaped and beautiful (*tsara*) in respect of his appearance (*tarehy*); Malayan *baig laku-nja puteri itu*, this princess was beautiful (*baig* in respect of her figure (*laku*)).

Statements of place and time are expressed by prepositions. In statements of time the preposition is often omitted, e.g. Malagasy *mifoha maraina ny olona mazoto*, industrious people rise (early in the) morning; Malayan *maka ketika itu djuga tiba-tiba datang djabarail*, and (at the) same (*itu djuga*) time came suddenly (*tiba-tiba*) Gabriel.

All possible adverbial ideas can be expressed in both languages by the affixing of the possessive, e.g. Malagasy *farany*, Malayan *achir-nja*, at the end, at last, from *fara* and *achir*, end; or by means of the preposition *an* in Malagasy and *dénan* in Malayan, e.g. Malagasy *am-pitaka*, deceitfully (= *an* + *fitaka*, deceit); Malayan *dénan ségéra*, quickly; or by both at the same time, e.g. Malagasy *an-drariny* (= *an* + *rary* + *ny*) justly; Malayan *dénan bitul-nja*, justly.

In Malayan reduplication also serves to give an adverbial sense to a word, e.g. *mula*, beginning, *mula-mula*, at first; *méntjuri*, to steal, *tjuri-tjuri*, stealthily. Reduplication is also used to form the plural, but at the same time implies some difference of meaning from that of the common form, e.g. *rumah*, a house, *rumah-rumah*, houses, houses of all sorts.*

THE REMAINING PARTS OF SPEECH.

71. The Malagasy possesses a prefix used in forming adjectives, namely, *mango*, though it is used in only a few cases, e.g. *mangotanatana*, wide open, from *tanatana*; *mangopetaka*, sticking on, from *petaka*. Both in Malagasy and Malayan derivatives with verbal prefixes are used as adjectives; in Malayan especially those beginning in *bèr*, e.g. *bèrguna*, useful; in Malagasy especially those beginning with *ma*, e.g. *mafana*, warm. In derivatives from the same root the Malagasy very often separates the verb from the adjective by using for the verb *ma* + nasal, or *mi*, whilst for the adjective the formative prefix *ma* is used; thus, from *lemy* are derived *malemy*, soft, *mandemy*, to soften; from *orana* are derived *morana*, rainy, *manorana*, to rain; from *vesatra* are derived *mavesatra*, heavy, *mivesatra*, to carry a heavy load. In both languages adjectives may be turned into nouns by adding the pronominal suffixes, e.g. Malagasy *lava*, long, *lavany*, length;

* In the above division I have given a few remarks on the syntax of the two languages, but with this exception I have in this paper paid little attention to the subject, as I still intend to write a special monograph on the comparative syntax of the Malagasy language.

Malayan *luwas*, wide, *luwas padañ itu*, this field is wide, *luwas-nja padañ itu*, the width of this field.

It is a fact of philological interest that the Malayan, which possesses no means of its own for forming derivative adjectives, has, in a few cases, taken over from the old Indian and Arabic the elements for forming them, e.g. from the purely Malayan word *rambut*, hair, is formed the adjective *rambuti*, hairy; from the purely Malayan word *tēmpa*, to hammer, to forge, is formed the adjective *tēmpawan*, forged, which is in analogy with the borrowed adjectives *būhsawan*, excellent, distinguished, *dērmawan*, charitable, beneficent, etc.

72. In §19 it was mentioned as a point of interest in regard to the development of civilization that the numbers in both languages for 100 and 1000 agree, as indeed is the case generally in the Malayo-polynesian languages. The words for 3, 7, 8, 9 (Malagasy *telo*, *fito*, *valo*, *sivy*; Malayan *tiga*, *tudjuh*, *délapān*, *simbilān*), are different in the two languages, but the Malagasy (and not the Malayan) has here preserved the original, as the Tombulu words *tēlu*, *pitu*, *walu*, *sijow*, the Sangir words *tēllu*, *pitu*, *walru*, *sio*, and the Batak words *tolu*, *pitu*, *uwalu*, *sija*, show.

The Malayan uses the numeral known as "the three dwarf stags;" *pēlandug tiga ekur*=the dwarf stags' three tails. The Malagasy has nothing of that sort. In the formation of the ordinals, distributives, etc., the two languages are quite different. There are, however, some uses of the numerals common to both languages which should be mentioned:—

For two things which are fellows or belong to one another the Malagasy has the word *kambana*=Malayan *kēmbār*, e.g. *zaza-kambana*=*anaq kēmbār*, twins. When three things thus belong together, the Malagasy says, *kamban-telo*=Malayan *kēmbār tiga*. A half is in Malagasy *sāsaka*, in Malayan *tēnah*, but *sasa-ny* and *sa-tēnah* mean *some*.

73. The Malagasy distinguishes the *casus rectus* from the *casus obliquus* in the personal pronouns, thus:—

Casus rectus.

I	= <i>izaho</i> or <i>aho</i>
Thou	= <i>hianao</i>
He	= <i>izy</i>
We (inclusive)	= <i>isika</i>
We (exclusive)	= <i>izahay</i>
You	= <i>hianareo</i>
They	= <i>izy</i>

Casus obliquus.

<i>ahy.</i>
<i>anao.</i>
<i>azy.</i>
<i>antsika.</i>
<i>anay.</i>
<i>anareo.</i>
<i>azy.</i>

The double form *izaho*, *aho*, has a parallel in Dayak, viz. *jaku*, *aku* (*z=j* in Dayak). The Malayan personal pronouns are *aku*, I; *ēñkau*, thou; *ija*, he. These can also be used as plural; for the plurals, however, there are also *kami*, we (exclusive); *kita*, we (inclusive); *kamu*, you; *marika-itu*, they. There agree in both languages *aho*=*aku*; *izy*=*ija*. In § 40 it was stated that the Malagasy provincial uses *angao*=*ēñkau*, thou.

In Malayan there are, in addition to *aku*, *ēñkau*, the forms *daku*, *dikau*, *dija*, which, however, cannot act as subject of a sentence. We have here therefore something like inflection. G. v. d. Gabelentz (on p. 207 of his work) holds this *d* for an inorganic prefix, but the difference in function between these and the other forms prevents me from accepting his opinion.

Infixes with the letter *r* serve to designate the plural in the Malayo-polynesian languages, and in this way the Malagasy second person plural of the personal pronoun is formed from the second person singular, i.e. *hianareo*, is formed from *hianao*. Van der Tuuk sees in the Malayan plural *marika itu* also such a sign of the plural. Moreover, the regular plural sign of some of the demonstrative pronouns in Malagasy is the infix *re*, e.g. *iny*, that, becomes *ireny*, those.

In the Malayan there is, as well as *aku* and *ēñkau*, a proclitic form, *ku* and *kau*; we thus have *ku-lihat*, I see; *kau-dēñar*, thou hearest. The Malagasy has nothing like this.

Both Malagasy and Malayan have the possessive pronouns in the form of suffixes, thus, Malagasy singular: *-ko*, *-nao*, *-ny*; plural: *-ntsika* (inclusive), *-nay* (exclusive), *-nareo*, *-ny*; Malayan *-ku*, *-mu*, *-nja*, for singular and plural. *Ko=ku*, and *ny=nja*.

74. The Malagasy has two articles, viz. one definite, the other personal. The definite article is *ny*. Something is said about its use in § 6. This article is actually the demonstrative pronoun *iny* abbreviated (see § 12). The Malayan use *iny* and *ny* as demonstratives; but while the Malayan places the demonstrative after the noun, the Malagasy generally places it both before and after, e.g. *iny omby iny*, that ox. Now one can easily imagine that the preceding demonstrative *iny* had less emphasis placed upon it than the succeeding one, and that therefore it gradually got worn down into the definite article *ny*. The Malayan likewise uses a demonstrative as article, viz. *itu*, but its use is far more limited than the Malagasy article, being only used as a general article, e.g. *rahasia itu saperti anaq-panah jan kita-panahkan*, (the) secret is like a dart which we let fly; or, secrets are, etc.

Both languages have also a personal article, viz. *i=si*, e.g. Malagasy *antsoy Iboho*, call Mr. Boto; Malayan *di-mana si-Amat*? where is Amat (=the Amat, or Master Amat)? From the pronoun *anona=anu*, so and so, are formed *ianona=sianu*, Mr. X., or Mr. So and So.

75. Both the Malayan and Malagasy distinguish between the theoretical, practical, and absolute negative. The first is in Malagasy *tsy* and *tsa*, in Malayan *ti* and *ta*; the second is in Malagasy *aza*, in Malayan *djañan*; the third is in Malagasy *tsia*, in Malayan *tidaq*. With the last of these is joined the verb *ary=ada*, to exist, thus, *tsiary=tiada*. In Malagasy *tsy* is the word in common use, *tsa* being provincial; *tsiary* [which is also provincial.—R.B.] is used in the same way as *tsia*. In Malayan *ta* only occurs in certain phrases, e.g. *tidor ta-lélap*, not to sleep soundly, *mau-ta-mau*, *nolens volens*. The Malayan *ti* is no longer in use, but only the compound *tiada*. The Malagasy *aza* and the Malayan *djañan* have the same primary root (see § 31). What is the *a* in *tsi-a* and *a-za*?

The Malagasy and the Malayan have in common certain phrases formed with the negative. The Malagasy *tsy may tsy* [or literally, *tsy mahay tsy*, and spelled *tsy maintsy*.—R.B.] = Malayan *ta-dapat tijada*, literally meaning "not able not," signifies "must be." From the Malagasy *inona* and the Malayan *apa*, something, are derived *maninona* and *minapa*, and therefrom is formed the Malagasy phrase *tsy maninona tsy maninona*, "nothing at all," [or rather, it doesn't matter.—R.B.], and the Malayan phrase *tiada minapa*, it doesn't matter.

COMPOUNDS.

76. The Malagasy is very, the Malayan not specially, rich in compounds. In Malagasy the compounds are formed in two ways:—

(1) Two roots are joined together without any other change, e.g. *feh-y*, a band, and *loha*, head, give *fehiloha*, a head-band. If the first word ends in *ka*, *tra*, or *na*, the Sandhi laws come into operation, thus, from *sarotra*, difficult, and *vidy*, price, comes *saro-bidy*, dear. The possessive suffixes are placed at the end of the second member, thus, *fehilohako*, my head-band.

(2) An *n* is inserted between the two roots. This *n* I regard as the possessive *ny=nja* (compare § 70), and thus differ in my opinion in this matter from others. From *feh-y*, band, and *satroka*, hat, we get *fehin-tsatroka*, i.e. *feh-y+n+satroka*.

Usage decides which of these two forms should be employed. Only *fehilo* is used for head-band, and only *fehin-tsatroka* for hat-band, but both *fehikapa* and *fehin-kapa* are used for shoe-lace. In a few instances there is a difference of meaning in the two forms, e.g. *trano-fitaratra* is a glass house, but *tranom-pitaratra*, a place for storing glass. In this the Malagasy agrees with the Dayak, e.g. *huma-papan*, a plank house (made of planks), and *huma-n-papan*, a house for storing planks.

The Malayan has only the first kind of compound. As the Malayan has no Sandhi laws, compounds are only recognised by their having a possessive suffix, e.g. bathwater is *ajar mandi*, but his bathwater is *ajar mandi-nja*.

When words are combined after the first of the two above-mentioned methods the "language spirit" considers the combination as a close or loose one, for there results either an actual compound or a syntactic connection, and this shows itself in the position of the possessive suffix, thus: Malagasy *omby*, a cow, an ox, *fotsy*, white, *ko*, my; *ombiko fotsy*, my white cow; *lahy*, male, *ombilahiko*, my ox [*omby* is either male or female. - R.B]; *vata*, a box, *kely*, small, *vatako kely*, my small box, *vata keliko*, my small box; Malayan *tañan*, hand, *kiri*, left, *tañan-nja kiri*, his left hand, *tañan-kiri-nja*, his left hand. The Malayan forms above all Tatpurusha and Dvandua compounds, the Malagasy forms all possible compounds. Malayan *ajar-mata*, tears (=eye-water), *ajar-mata-nja*, his tears; *ibu bapa*, mother (and) father (=parents), *ibu-bapa-ku*, my parents. Further instances are: *biri*, to give, to cause, *tahu*, to know, *pembéritahuan*, information, communication of knowledge; *sembah*, mark of respect or adoration (which may be compared with the Hindoo *anjali*), *jañ*, godhead, *sembahjañ*, to pray, *menjembahjañkan*, to pray for someone. Specially worthy of mention are the numerous metaphorical compounds, which, however, we know to exist in other languages than Malayo polynesian; for example, in Siamese, Malagasy, and Malayan there is no word for sun, "the eye of day" being used instead, viz. *masoandro*=*mata-hari*. Other examples are *zana-tsipika*=*anaq panah*, lit. child of the bow (=dart); *zana-tohatra*=*anab tanga*, child of the staircase (=step); *renivohitra*=*ibu-nigiri*, mother town (=capital).

Translated from the German of

DR. RENWARD BRANDSTETTER

By R. BARON (ED.).



AMBATOVORY, ONE OF OUR HOLIDAY RESORTS
IN MADAGASCAR;*WITH NATURAL HISTORY AND OTHER NOTES.*

BY the kind consideration of the Directors of the London Missionary Society for the comfort and health of their missionaries in the central province of Imèrina, we have had, for some years past, a pleasant Country-house or Sanatorium, to which, after a year or so of steady labour in college, or school, or hospital, or church and district, we can go for a fortnight or a month's quiet holiday. This peaceful resting-place is situated about 12 miles east of Antanànarivo, on the Tamatave road, a mile and a half beyond the mission station of Isoavina, and a mile or less west of a great rounded mass of granite rising about 400 feet above the rice-valleys, and known as Ambàtovòry, i.e. 'Round rock.' On the summit and eastern and western slopes of this huge boss of rock are numerous trees, much more plentiful on the western side, where they stretch down into a deep valley and form an amphitheatre of wood and bush. This vegetation is probably a remnant of the original forest, which once covered a much larger area of this mostly bare and treeless Imerina, and it forms a refreshing contrast to the moory hills and rocky mountains which are seen in every direction. The Mission Rest-house is a good six-roomed dwelling on the slope of the hill facing the south, and from it the ground falls rapidly down to the rice-valleys a couple of hundred feet below; the large piece of ground belonging to the house joining on to the bush and scattered trees of the Ambatovory forest, so that in two minutes' time one can stroll into the woods, through which a number of paths have recently been cut, or, turning in the opposite direction, can walk over the breezy downs towards Isoavina. Here is the pleasant mission-house of Mr. Peake, with its long row of cottages for the workmen in the Industrial School which he has carried on for several years, its school- and classrooms, and its pretty church and school-house, forming altogether a model mission station.

Behind the Rest-house rises for several hundred feet above it a rounded hill called Ambònìlôha, i.e. 'Over-head,' a not inappropriate name. Like scores of hills throughout Imerina, a number of deeply-cut lines round the summit show that this place was formerly the site of a well fortified town. These lines, which can be seen for miles away, prove on closer inspection to be deep fosses cut in the hard red earth, a treble line of defence one within the other, the innermost rampart being strengthened by a low wall of massive stones. No building now remains in this "deserted village," but many squares of grass-grown stones can be traced, showing the former outline of the wooden framework of the houses; and on the highest spot there is an ancient tomb, where doubtless some of "the rude forefathers of the hamlet" sleep their last sleep.

In front of the house, looking south-west, the view is partly shut in, at a mile or two's distance, by lofty rocky hills rising high above the rice-valleys far below; but to the south-east one gets a peep into a distant prospect of lines of hills, some of the nearer ones being enormous masses of bare rock; while to the east the view is closed by the smooth rounded slopes of Ambatovory itself, with the woods around it and stretching down into the deep valley at its base.

There are many pleasant walks in the neighbourhood of the Sanatorium. One of these is to the top of the Ambatovory rock, from which there is an extensive view, and around which, to east and south, are fine trees and pleasant shady spots, where a picnic party can be improvised, and where ferns and other plants can be gathered. A few years ago there was a small village on the spot; four or five years ago there were about that number of houses; while now there is not one left, the people, as is usual throughout Imerina, deserting these inconvenient heights for the plains. But a row of half-a-dozen old tombs, with small timber houses on their tops, show that this was a village of one of the noble clans or *Andriana*, who alone are allowed to make such wooden houses, *Tràno masina* or *Tràno manàra*, as they are called (i.e. 'Sacred houses,' or 'Cold houses*'). These are, however, now tumbling to peices, and after two or three more rainy seasons heaps of rotting wood will be all that is left over the tombs of these departed great ones of the district.

Another easily-reached spot is a detached rock, something like a miniature Ambatovory, but a short distance to the south of it. Here a scramble over a great sloping surface of gneiss brings us to a rough ascent leading to an ancient gateway. The top of this rock was evidently a fort of the old times; for, except where we climb up, there is no approaching the summit, and no need of fosses or ramparts, as the smooth rock slopes away perpendicularly all around; and in the days before guns and gunpowder a dozen resolute men could have barred the narrow approach against a hundred assailants.

The paths through the woods are, however, among the most pleasant places for a walk in the neighbourhood of Ambatovory; and although the small remnant of old forest is too limited in extent to furnish much variety in animal life, there is still a great deal to interest those who have a taste for natural history, especially if they will only use their eyes.

Of four-footed creatures in the shape of Mammalia there are none, except possibly some of the small hedgehog-like creatures (the Centetidæ), as the woods are far too restricted in range for any species of the Lemurs to find a home there; and there is no great variety even of Birds. There is a space of fifteen or sixteen miles of bare moors between this place and the upper forest, so that few of the numerous feathered tribes of the wooded regions come over the intervening country. In the warm season the *kao-kao kao-koo* of the *Kankafotra*, the Madagascar Cuckoo, is continually heard among the trees and bushes, as well as the chirping and whistling cries of a few of the smaller and less conspicuous birds, and the cooing note of one of the wood-pigeons. About the rocks one may constantly hear the querulous cry of the little *Hitsikitsika*.

* 'Cold,' because they are houses having no hearth or fire to warm them.

or Kestrel, and see them hovering in the air or darting about; and now and then we come across a flock of the *Papango* or Egyptian Kite, perched on the trees, or swooping down near the native houses to carry off an unwary chicken or mouse. Of course the ubiquitous *Goaika* or native Crow is never far away. With his fine white collar and square white patch on his breast, he has a very clerical appearance; he haunts the neighbourhood of the great open-air markets, where he apparently picks up a good living from the scattered rice and refuse of various kinds. In the warm season flocks of the little Weaver-birds may be seen, both the *Fody*, the male of which is mostly of a brilliant scarlet at the hot season of the year, and the smaller *Tsikirity*, in sober brown livery, which darts down like an arrow on the rice-fields in companies of thirty or forty together. In the rice-fields the *Takatra*, a brown stork, may be sometimes seen stepping solemnly about. He builds an enormous nest, which looks as large as a truss of hay and is fixed on the fork of a tree, or on the edge of a large rock, and there are many superstitions and fables connected with him. In the old times of idolatry if one of these storks crossed the path along which any of the chief idols was being carried, it was immediately taken back; and it was thought equally unlucky if it crossed the road in front of the Sovereign.

The Reptiles to be found near Ambatovy are small and inconspicuous. Two or three species of lizard are frequently seen: the pretty little *Antsiantsy*, with brown coat and white lines and dark spots along its sides, eight or ten inches long, darts about like an arrow on rocks and sunny banks; while a smaller species, about four inches long, is of an exquisite green colour above, with black and white lines along its sides, and pale grey underneath. It is often seen running around the fleshy leaves of the aloes, its tinting forming a protective resemblance among its surroundings. Equally beautiful are the bright tints of some of the small chameleons, black and yellow, and red and green, and equally protective also, in case of need, is their power of changing into dull grey or brown when alarmed. Small pretty brown snakes may be often seen, from 18 inches to two feet long; and happily they are perfectly harmless, as indeed are all the serpents of this great island, at least there are none whose bite is dangerous. And yet it is amusing to see how the Malagasy leap out of their way with the greatest alarm. We found on one occasion a very large earth-worm, three times as long and bulky as any we had ever seen in England.

But perhaps it is the Insects which attract one's attention most constantly. On the open downs, and when the sun is shining, the air is filled with the hum of chirping insect life from the many species of grasshoppers, crickets, and small locusts which cover the ground. Every step among the long dry grass disturbs a score of these insects, which leap in all directions from one's path as we proceed, sometimes dashing on one's face with a smart blow. The majority of these are of various shades of brown and green, and some of the larger species of grasshopper are remarkable for their protective colouring. Here is one whose legs and wings are exactly like dry grass; the body is like a broad blade of some green plant, the antennæ are two little tufts, like yellow grass, and the eyes are just like two small brown seeds. But, curiously enough, when it flies, a pair of bright scarlet wings make its flight very conspi-

cus. You pursue it, to catch such a brightly coloured insect, when it settles, and lo! it has vanished, only something resembling green or dry grass remains, which it requires sharp eyes to distinguish from the surrounding herbage. Other grasshoppers are entirely like green grass blades and stalks, and others again resemble, equally closely, dried grass; and unless the insects move under one's eyes it is almost impossible to detect them. One is puzzled to guess where the vital organs can be placed in such dry looking little sticks. There is one species of mantis also, which, in the shape and colour of its wings, legs, antennæ, and body, presents as close a resemblance to its environment as do the grasshoppers. Their curious heads, however, which turn round and look at one in quite an uncanny manner, and their formidably serrated fore-legs or arms, put up in mock pious fashion, give them a distinctly different appearance from the other insects. In the dry and cooler season on almost every square foot of ground is a large brown caterpillar, often many of them close together, feeding on the young blades of grass.

But the most handsome insect one sees on the downs is the *Valalan-ambôa* or Dog-locust. This is large and is gorgeously coloured, the body being barred with stripes of yellow and black, while the head and thorax are green and blue and gold, with shades of crimson, and the wings are bright scarlet. It seems a most desirable insect for a cabinet, but it is impossible to keep one, for it has a most abominable smell, and this, as well as its probable possession of a nauseous taste, appears to be its protection, so that no bird or other creature feeds upon it. This insect seems therefore a good example of "warning colours;" it has no need of "protective resemblance" lest it should be devoured by enemies; it can flaunt its gay livery without fear, indeed this seems exaggerated in order to say to outsiders: "Hands off!" "*Nemo me impune lacessit.*" The Malagasy have a proverb which runs thus: "*Valalanamboa: ny tompony aza tsy tia*," i.e., "The Dog-locust, even its owner dislikes it."

There are many species of Beetles to be seen, although none of them are very handsome or conspicuous. The most common kind is a broad flat insect, about an inch long and dull dark-brown in colour, which crosses one's path at every step. Another is seen chiefly on the bushes, a smaller insect, but bright shining jet-black. Another, which appears as if it mimicked a wasp in its habit of flight, is shot with brown and green, with very long legs, and is constantly taking short flights or running rapidly. Another one, but much more rare, has golden green and metallic tints on its wing-cases. But the insect which has puzzled us most is one that I have never seen but on one spot, viz., on a large bush of *Rôimémy*, a plant with acacia-like leaves, with prickles along the leaf-stalks, and on only one bush of this, which is within a few yards of the Rest-house at Ambatovory. It is like a beetle, about $\frac{5}{8}$ of an inch long, and almost hemispherical in shape. It is warm reddish-brown in colour, with a line of black and then of yellow next the head, and is perfectly flat below. These insects cluster closely, as thick as they can lie, in groups of from a dozen to more than a hundred together, all round the thicker stems, so that they look at a little distance like strings of large brown beads; and in some of the topmost branches they form a continuous mass for two or three feet. Amongst these shining brown

insects are a few others of quite a different colour and shape, perfectly flat, like a minute tortoise, and of a uniform grey, exactly resembling the lichen on the bark of the tree, and the edges of the carapace scoloped.* These grey insects are in the proportion of about one to 40 or 50 of the darker-coloured ones. There are also a few individuals of the same shape as the brown one, but yellowish-green in colour. What these grey insects can be, and what relation they bear to the much more numerous brown one, I cannot make out. Nor can I ascertain why they all remain motionless and in the same position for weeks together. During the three weeks of our stay here, at any rate, they seem to have not altered in position, although I think the lower clusters are slightly diminished in number. I thought at first that they must be feeding in some way on the tree, as their heads seem closely fixed to the bark, as indeed is the whole body; but on minute examination I can find no trace of any puncture or sign of their gnawing or eating the bark, although the branches on which they are most thickly clustered seem more dry and withered than the others. Their torpid condition certainly does not arise from inability to move, for, on being disturbed or shaken off, they will fly a considerable distance and will creep along the branches. I have noticed these insects on the same bush, and nowhere else, during previous visits to Ambatovondry at this time of the year (December), but not during the cold season.†

(Since writing the above, I have had another inspection, in the cold season, of the tree with these curious insects. There are now (June) to be seen not a single one of the brown bugs, but the branches are thickly covered with hundreds of young ones, about $\frac{1}{4}$ to $\frac{1}{3}$ of an inch long, but these are all flat, and grey in colour, with the edge of the body serrated. The difference in shape and colour in insects so closely associated together certainly seems remarkable.)

The Ants are, as in all tropical countries, very numerous and of many species. All of them, from minute kinds not an eighth of an inch long to others half an inch to $\frac{5}{8}$ inch in length, appear to make nests in the ground, with circular shafts leading down to them from the surface. It is amusing to watch the busy industry of these little creatures, the sides of the shafts being covered with their shining black bodies, those coming up being laden with a little pellet of earth, which they deposit outside the slope and then hurry back down below. All round the mouth of the entrance is a considerable mound of earth, all brought up grain by grain by the busy workers. The ants are the scavengers of the country. No beetle, or worm, or grub, or animal matter of any kind, can be many minutes on the ground before it is detected by some ant, who communicates the fact forthwith to its fellows, and they immediately fall on the spoil, cut it in pieces, and convey it to their stronghold. It is astonishing to see the heavy loads—pieces of sugar-cane, or yam, or other food—that two or three ants will stagger along with for the common weal. Truly, although they are a small folk, they are “exceeding wise.” The thinking power in that minute point, an

* Mr. Baron tells me that both kinds are certainly species of bug, and that they are common on other kinds of trees. They have a very bad smell. Nearer the forest are other kinds of bugs, but of the most brilliant colours, and also evil smelling.

† I have subsequently seen it in other places.

ant's head, is certainly one of the most marvellous things in animated nature.

While speaking of wingless insects, I may notice here a very different kind of one from the ants, viz. the Ball-insect (*Spherotherium* sp.), of which there are several species in Madagascar. These insects, called not very elegantly by the Malagasy *Tainkintana*, or 'Star-droppings,' have the power of instantaneously rolling themselves into an almost perfect sphere, which form they retain as long as any danger threatens them, and no force short of pulling them to pieces can make them unroll. The animal is formed of nine or ten segments, each with a pair of legs and covered with a plate of armour; while the head and tail are defended by larger plates, each of which fits into the other and makes a more perfectly fitting suit of armour than was ever worn by medieval knight. There are several species of these pretty and curious creatures. The most common kind here is one which forms a ball barely an inch in diameter and shining black in colour. Another, more rarely seen here, but common enough in the upper belt of forest, is of a beautiful brown colour like Russia leather, and is quite double the size of the first-mentioned one. In passing through the main forest in 1892, we came suddenly one day to a part of the road which was so thickly covered by such a great number of these creatures that our bearers could not avoid trampling on them. These were of a bronze-green tint and are probably a third species.

In all parts of Madagascar the Spiders are very conspicuous members of the insect-world. The most common kind is a species of *Epeira*, which spins large webs and may be seen by scores between the branches of trees and the angles of buildings. These are large insects, their legs stretching over four or five inches, and their bodies being handsomely coloured with red and gold and silver markings. From the way in which these spiders cross with their great webs the fosses round the old villages they are called by the Malagasy *Mampitahady*, i.e. 'Fosse-crossers.' The main 'guys' or stays of their webs are strong and thick yellow silk cords, which require an effort to break. Another species, also common, is somewhat crab-like in shape, with curious spiny processes on the abdomen and thorax. Other smaller species of spider, found on leaves and in flowers, are coloured exactly like their surroundings, some being of various shades of green, and others pure white, apparently that, with these protective resemblances, they may more easily pounce upon the smaller flies and other insects attracted to the flowers.

In these bare upper highlands of Madagascar Butterflies are not found in as great variety as in the warmer regions of the island. Still there are a few species which are common enough, the most plentiful being one which is satiny-blue above, and spotted with brown and grey underneath. This is to be seen all the year round, especially hovering over the Euphorbia hedges which divide plantations from the roads. Another, also tolerably common, is a large reddish-brown butterfly, the wings edged with black and white. Much more rare is an insect with four large round white spots on dark chocolate-brown wings; and another, dark-brown in colour, with eye-like spots of blue and red. Several small species, yellow, white, or brown, or silvery-grey and blue, are found hovering over, or settling on, damp places; and there are two or

three white species, with black spots or lines on the edges of the wings. In the warmer season a handsome large *Papilio* is rather common in our gardens, with dark-green and sulphur-yellow spots and markings. And lastly, but rather scarce, is one of the handsomest butterflies in the world (more strictly speaking, it is a diurnal moth), the *Urania riphaea*. This insect, with its colouring of green and gold, and scarlet and black, and its delicate fringing of pure white on the edges of the wings, is indeed one of the most lovely productions of Nature. The Malagasy call it *Andriandòlo*, i.e. 'King butterfly' (or moth).

We do not see many Bees in this Ambatovy wood, but there are several species of Solitary Wasps, whose habits are very interesting. One species excavates a hole in the ground or on the side of a bank, and then, capturing some unfortunate spider or caterpillar, which she benumbs with her sting, carries it into the hole and lays an egg in its body, so that the little grub, when hatched, finds itself surrounded by food, and then eats its way out into the daylight. The hole is, after being filled up, so carefully concealed that it is quite impossible to discover it. Another species of wasp builds a series of cells of clay, which the busy worker brings in pellets and builds up layer by layer, fixing them to the sides of houses and rocks, and storing each cell with living food for its progeny in the same fashion as its mining cousin.*

But it is time I concluded these reminiscences of our summer holiday at Ambatovy. Our longest excursion was one to the grand mountain of Angavokely, which is two or three hours' ride to the east, to the south of the Tamatave road. Angavokely is one of the highest and most conspicuous mountains in Imerina, rising 1300 or 1400 feet above the general level of the province; and it extends for two or three miles east and west, with two summits nearly equal in height and quite a mile apart. The easternmost of these rises steeply from the surrounding valleys and is crowned by enormous piles of rock, while the western summit rises with much gentler slopes covered with bush, except on the south side, where great masses of granite appear, looking like the towers of some Titanic castle. A couple of hours' ride brought us to the rice-valley immediately under the eastern peak, and from which we commenced the ascent, a pretty steep one. At about a third of the way up is a large bare sloping surface of rock, on which we were glad to rest and take breath. Again we climb up, the grass being very slippery, and foothold very difficult. As we get higher we come into a dense shrubbery of bush and small trees; and all around are hundreds of the large showy white flower called *Tsingatsa* (a species of *Crinum*), with its long ribbon-like petals and powerful scent. One more halt at the base of the immense bare rocks which form the summit, and which tower grandly for three or four hundred feet above us, and make us all look like pigmies in contrast, and then we make a final effort, scrambling up among the huge stones, until at length we come to a rough staircase between two walls of granite, with beautiful embroideries of moss and lichen and fern. Up, up we go, and at last come upon a level platform several hundred square

* For a very full and illustrated account of these insects, see a paper by the Rev. C. P. Cory, "Notes on the Habits of some of the Solitary Wasps of Madagascar;" ANNUAL XIV. 1890, pp. 163-170.

yards in extent, and are glad to throw ourselves down on the grass and recover breath after our climb.

From this "coign of vantage," many hundred feet above the valley, we have of course a very extensive and varied prospect. To the north-west is the round mass of Lohavohitra in Vönizongo, and the long serrated ridge of Andringitra, with its cave (the Malagasy Delphi); away north is the line of Ambôhimiàkatra, and the point of Ambàravàrambàto ('Stone-gateway'), on the way to Antsihànaka; from north-east to south-east is the long dark line of the upper forest, with Angàvo and Ifôdy mountains, over which we cross on our way to and from the coast; beyond this again is the treeless plain of Ankày; and still beyond and bounding the view, 50, 60, or 70 miles in the blue distance, is the larger and lower forest, and ridges and peaks which we can see clearly from Tamatave. Only due west is the view interrupted, for we are not yet on the topmost pinnacle, there being still a mass of rock a hundred feet higher still, up to which our bearers scramble, but which we are quite content to leave them the honour of scaling, as the ascent appears somewhat difficult. Still, by going round the edges of the platform, we can catch all the more prominent points to the south and south-west: Ihàranandriana, on the road to Bètsilèo; many familiar-looking hills west of the Capital; Antanànarivo on its long rocky ridge, crowned by the group of Royal Palaces and two of the Memorial Churches; and, rising gradually but unmistakeably far above all, the mass of Ankàratra, the highest point of the island, 40 miles away, with its three or four central peaks nearly 9000 feet above the sea, and about half as much as that from the general level of Imerina. Truly a grand prospect, for, except from Ankàratra itself, there is hardly any point where we could command such an extensive view as this. Steep down below us to the east is a pretty rice-valley stretching in a remarkably straight line for several miles both to north-east and south-west. The houses and hamlets below look as if a stone could be thrown upon them from this ten or twelve hundred feet of elevation; and as our eyes follow the green rice-fields, village after village appears on the promontory-like *tanéty* or gentle rising grounds, so that we think what a fine field of work there would be in this valley alone for a resident missionary.

But we find that the steady pull up these hundreds of feet and the pure fresh air of this breezy height has given us a keen appreciation of less æsthetic things than scenery; and presently the substantial lunch we have brought with us makes us oblivious for a time to the beauties around us. The long grass makes a comfortable dining-room, and we enjoy not only our lunch, but also a lazy half-hour after it on the dining-room carpet. At length the gathering clouds to the east and south warn us that a storm is brewing; we scramble down the rocky staircase, run and slide down the slippery slopes, and in a very few minutes reach the little valley at the foot of the mountain, but not before a peal of thunder tells us that we had better lose no time on the way home. Our bearers hastily swallow their rice; we mount our palanquins, and as we gain the main road the storm bursts in great grandeur over the western summits and slopes of the mountain we have just descended. Great solid-looking black clouds roll down its sides, with lovely glimpses between them of the sun-lit landscape miles away beyond. The

thunder peals around us, with rather alarmingly near flashes of tropical lightning, and while yet a mile or two from home, the heavy rain pours down; but we soon get under cover, with no greater harm than a wetting, and with many pleasant remembrances of our day at Angavokely.

Here these jottings of one of our summer holidays must close. They have been noted down chiefly for our relatives and friends in England, in hope that they may enable them to realize a little more vividly the country where we live and labour, and especially one of the places where we gain fresh strength and vigour for another year's work.

JAMES SIBREE (ED.).



FROM FORT DAUPHIN TO FIANARANTSOA:

NOTES OF A JOURNEY IN SOUTHERN MADAGASCAR.

THE journey from Fort Dauphin to Fianarantsoa (the chief town of the Bétsiléo province) has not been very often undertaken by Europeans, and portions of my route have, I believe, never before been traversed by a white man. All the existing maps are grossly inaccurate in their delineation of South-eastern Madagascar. I will therefore here describe the earlier stages of my long journey from the extreme south of the island to the capital, across what is practically still a *terra incognita* inhabited by savage tribes, none of which are more than nominally subject to the Hova, and some of whom enjoy an indisputable independence.

The steamer *Dunbar Castle*, in which I had sailed from England, came to an anchor on the morning of March 17th in the picturesque bay of Fort Dauphin. Great hills, backed by mountains of bold outline, enclose this spacious bay, and the rollers of the Indian Ocean break on a sandy beach of dazzling whiteness. On a bluff at the south side of the bay is the little settlement nestling among trees and bushes, the old fort dominating all. Here the *Dunbar Castle* only remained half an hour before resuming her voyage up the coast, and I had to decide quickly whether I would disembark here, or proceed with the steamer to Mananjara or Vatomandry, the two ports from which the capital could be easily reached. Fort Dauphin was the southernmost Hova post and must be nearly 600 miles distant from Antananarivo by the rough and very winding track, which traverses malarious swamps, dense forests, and high mountains—regions infested by robber tribes—and uninhabited wildernesses. Such a journey would be long and difficult, and a European undertaking it would be certain to suffer from malarial

fever in a more or less severe form. It was doubtful, moreover, whether at Fort Dauphin one could get the necessary transport for one's baggage and supplies. However, besides other considerations, what chiefly determined my decision to stay here was the state of the weather. It had been blowing hard for days, and a high sea was running; the officers of the steamer were of opinion that the surf would be very heavy on the dangerous bars of Mananjara and Vatomandry, and that communication with the shore would be impossible.

Under all the circumstances, I considered it best to seize my first opportunity of putting my foot on shore, so lowered myself on to the lighter which had been pulled out to us by the naked coastmen—noisy wild-looking fellows, with Papuan mops of hair, and bearing a strong resemblance to the savages of some South Sea islands—and within half an hour I was standing on the hot white beach and introducing myself to the group of Mauritian Creoles and Hova who were awaiting our arrival.

A fellow passenger on the *Dunbar Castle*, whose destination was Fianarantsoa, and who had come to the same decision as myself, disembarked with me. This was the Rev. J. Pearse, of the London Missionary Society, a gentleman whose knowledge of the Malagasy language and of the inhabitants is probably second to that of no other white man in the island. He was my companion for the first and most difficult half of my long journey. In this I was very fortunate. He was a capital fellow traveller, and his long experience of native ways extricated us without loss of dignity from many a trouble with aggressive savages.

We found about a dozen Europeans in Fort Dauphin, all British or Norwegian subjects, the French having left a few weeks previously. The traders were in a despondent condition, for the civil wars raging in all the surrounding country had almost put a stop to commerce; on the one hand, no cloth was being purchased from the traders, and on the other hand, the natives were no longer bringing in indiarubber—the principal article of export—from the forests. The Governor and his garrison were practically isolated in their fort, and the Hova rule then scarcely extended outside its walls. The Tandroy tribes, who occupy the southernmost point of Madagascar and are wholly independent, were carrying on extensive raids at the time of my landing. They had murdered many Hova and had driven the Europeans out of Mandréré and Andrahombè, two small trading-stations on the coast, about 20 miles south-west of Fort Dauphin, had pillaged their stores, and were reported to be advancing upon Fort Dauphin itself. There was war in fact in all directions, and on the road we had to traverse fighting on a larger scale than usual was going on between the queen of St. Lucia and her rebellious people. It was no wonder then that when I paid my respects to the Governor in his ruined fortress, I noticed that he had a harassed and preoccupied air.

Mr. Pearse and myself had the greatest difficulty in procuring bearers; for three days we sought men in vain; all were afraid to accompany us through the disturbed districts, and I began to think that I had made a great mistake in landing at Fort Dauphin. But, happily for us, a Norwegian missionary, Mr. Nilsen, happened to arrive at Fort Dauphin from the north with a considerable following of men, Betsileo and

Tanala, who were anxious to return to their homes, and were therefore glad to accompany us; for a white man is greatly respected even in wild parts of Madagascar, is rarely molested himself, and by his presence protects any natives who may be travelling with him. These men, however, knowing that it was impossible for us to engage others, insisted on an exorbitant rate of pay. As a rule, the Malagasy bearers are cheery willing fellows, but these particular men were lazy and mutinous, far more troublesome rascals, Mr. Pearse assured me, than he ever before had dealings with in all his thirty years' experience in the country.

We set out on our journey on March 20th. It was our intention to follow the coast as far as Vangaindrano, the next Hova military post, a distance of 150 miles, and thence to strike across the Tanala country to the Betsileo highlands. Our eight days' journey to Vangaindrano brought us across the Tanôsy country. The tribes here have always been very troublesome, and they have been in a chronic state of rebellion for ten or twelve years past. A few Europeans are settled on the coast, but the interior of the province is altogether unexplored, and Fort Dauphin is the only Hova post.

Six men, lightly loaded, carried our baggage and stores, and we engaged eight palanquin bearers each. These trained bearers, relieving each other at frequent intervals, can carry a man thirty miles a day, if the conditions are favourable; but on this journey we averaged about twenty miles a day, for our progress was necessarily slow across the deep swamps. The numerous difficult fords, and the broad rivers which had to be crossed in small dug-out canoes, caused much delay, while the forest paths were generally too narrow to allow of two men going abreast, so that we had to walk no inconsiderable portion of the distance.

For the first few marches we avoided the beaten tracks and followed the sands of the sea shore, so as to lessen the chance of falling in with war-parties of the fighting tribes; for though these were not likely to interfere with white men, they might frighten our timid bearers, who would not scruple to run away and leave us alone with our baggage in the middle of the wilderness. We met a few of these coast warriors on the war-path, brown athletic savages with bushy black hair, naked save for the loin-cloth, and armed with spears and old flint-lock guns of Tower make, which they always keep bright and clean.

The coast scenery of the Tanôsy country is as beautiful as any I have seen in the West Indies, or in any tropic sea. To give particular descriptions of some of the splendid views we admired would occupy too much space here. It was a very varied scenery. Spurs from the inland mountain ranges form grand promontories, enclosing lovely bays. Numerous large rivers pour their waters into the sea, but they are unfortunately all closed to shipping by shallow bars. Many of these rivers have shallow mouths and tumble in roaring cascades into the ocean breakers, but open out inside the sand-dunes into extensive lakes or lagoons. In some of these spacious bays the water is quite calm, for right across them, from promontory to promontory, stretch strings of islands, some richly wooded, some barren and wild, connected by submerged reefs, on which the Indian Ocean rollers spend their fury with a perpetual roar, throwing vast columns of foam into the air. Occasionally, on reaching some high ridge, we could see far over the inner country: first the coast lagoons bordered by mangrove swamps or by low hills covered with tropical bush and groves of

palm and traveller's-trees; then a vast expanse of grassy plains and rolling downs extending to the far blue mountains which form the backbone of Madagascar. The Tanosy country, though apparently a rich one, is very thinly inhabited. We often travelled all day without encountering a human being or seeing a sign of cultivation, and it was only in the immediate vicinity of the rare villages that small but luxuriant patches of sugar-cane, manioc, sweet-potatoes, rice, and maize testified to the productiveness of the soil. This, to all appearance, would be as good a country as any in the world for the white planter, were it not for the coast fever, especially deadly at the season of our journey, the termination of the rainy season, when the subsiding waters leave lagoons of mud to fester in the sun.

Sometimes we travelled along the surf-hardened sand at the very edge of the breakers, and sometimes plunged into the forest, where the dense vegetation shut out the breeze and light, and the black mud gave out a foul odour as we trampled through it. In mid-forest we at times came across delightful open glades, where the soft grass was studded with the fantastic pitcher-plant and with numerous flowers. For miles at a time our way lay across the malarious swamp, where gigantic arums were in blossom, and the snow-white herons had their haunt. It was delightful to come out again from the suffocating jungle on to the open sea shore, and feel the fresh sea wind and the salt spray on our cheeks. Often our way lay for many miles along a narrow strip of sand with water on either side, on our right the breakers of the Indian Ocean, on our left the still lagoon. Then we would strike inland again to cross a country of curious formation, crumpled up like a confused sea after veering gales, huge grassy hillocks divided from each other by a network of steep gullies, the bottom of each gully being a fetid morass shaded by ferns and traveller's-trees. For half one day we travelled by canoe across the delta of a great river, winding about through a bewildering labyrinth of sinuous streams, narrow creeks, islands, lagoons, and swamps, ignored on all the maps. The rivers were our principal difficulty; they were said to swarm with crocodiles, and the fords were often deep and dangerous, while no less than fifteen rivers were unfordable and had to be crossed in dug-outs, which were not always easily procurable from the surly and suspicious tribesmen.

Our second day's journey brought us to the large coast village of St. Lucia, on the bay of the same name, a port formerly frequented by coasting vessels from Tamatave. We found only one European there, a Mauritian Creole who kept a store; he told us that the tribal war had brought all trade to a standstill, and that in all probability the village would shortly be pillaged. But we passed through this disturbed little state without encountering any armed force, which was probably due to the heavy rains rendering fighting exceedingly uncomfortable. This civil war, however, caused us some delay on the bank of one broad river. The natives, who were on the further side with their canoes, refused for a long time to ferry us across, being under the impression that we were an invading army. We certainly formed a somewhat formidable-looking party, several natives travelling with us for protection, so that we numbered about forty, all the men carrying spears, some of them muskets as well. They yet displayed timidity on some occa-

sions, and on portions of the road, where they anticipated danger, they closed up, instead of straggling over a mile or two of country, as usual, and begged me to go ahead of them with my revolver, a white man's weapon in which apparently they had great confidence.

Having safely traversed the regions of civil war, we entered the district of robber communities. For three nights in succession we took shelter in the principal villages of three robber kings, the royal palace being, on each occasion, placed at our disposal. We found these people mean, false, and incredibly greedy, but far too cowardly to resort to force when any risk was to be incurred.

A description of one of these villages—Mahavelo on the Fihahaka river—where we slept on March 23rd, and an account of our dealings with his thievish majesty, will convey an idea of the sort of people we had now got among, a people whose degraded condition surprised Mr. Pearse, who assured me he had never come across such barbarism throughout his wanderings for thirty years over the island.

The village, which contains about 600 inhabitants, is, like all others on the coast, enclosed by a stockade, within which the cattle are driven each evening for protection against thievish neighbours. Each house consists of but one room and is constructed of the mibrib and other portions of the leaves of the traveller's-tree, fastened together with fibres of the same tree, the whole supported by a light wooden framework. The floor is raised two feet above the ground, the house standing on piles in a filthy quagmire of mud and cowdung. The lowing of cattle, the cackling of hens, the shrill gossiping of women, and the crying of babies, combine to make one of these crowded Tanosy villages very noisy after sunset. The coast people are of a very mixed blood: Negro, Arab, South Sea Islander, Malay, and other races seem to be represented in this curious breed of men. I have seen natives who might have stepped out of a Ghoorkha regiment, others who might pass for natives of Calcutta. In the same village one can observe the repulsive features of lowest savagery and the refined beauty of the higher branches of the human family. There are types too that puzzle one to classify. At Mahavelo, for example, I noticed one tall, lean, bronze-coloured man, with shapely limbs. His hair was tied up in a sort of top-knot. There was an uncanny and sinister beauty in his cruel, yet intelligent, face; he looked somewhat like an Egyptian mummy brought to life again and possibly had the blood of old Phœnician navigators or later pirates in his veins. The men of Mahavelo were for the most part naked, save for the loin-cloth; while a piece of papyrus matting was the favourite costume of the women, none of whom, by the way, had the slightest pretensions to good looks. On the whole, they were an unpleasant people to look at, and their bodies, almost without exception, were disfigured by various loathsome forms of skin disease. A Tanosy village is not an inviting place, and the mazes of cobwebs that link house to house and hang across the dirty alleys, full of large spiders of repulsive appearance, do not make the general affect any more agreeable.

As we entered the village the king came out to meet us, a crafty-looking old scoundrel, who is the most notorious robber on this road. He received us with great politeness and placed his house at our disposal for the night; it consisted of one room, like the other huts, and

stood on four stout stilts in the very centre of this great dung-heap. In applying the titles of 'king' or 'queen' to these petty chiefs, I am but following the universal custom of the south of the island. The same term (*mpanjaka*) is employed when speaking of the Queen of Madagascar and of the robber ruler of a village. As we sat on the matting and awaited our usual dinner of fowl and rice, which our men were cooking for us in the middle of the room, the almost naked king and his hideous queen, wrapped in a mat, crawled through the low door and presented us with some rice and milk in token of their friendship. The old king beamed upon us with a perpetual smile, but its expression was not prepossessing. He was fulsome in his regard for us, and informed us that he himself would ferry the illustrious strangers, who were to him as "father and mother," across the broad river below the village on the following morning—a great honour paid to few. He was as nice-spoken a robber chief as one could wish to meet, but we trusted him not; he was far too polite for an honest monarch. While in the house with us, the queen had a violent squabble with some of our men, to whom she had sold four-pennyworth of rice. Having carefully weighed in her brass scales the little chips of cut money they had given her, she bitterly complained that there was some fraction of a farthing under weight, and shrieked voluble abuse, until we comforted her with the gift of a pennyworth of silver. The intense greed expressed in the features of the king and his consort, while this haggling was going on, was revolting to behold.

On the following morning we gave the king and queen an adequate *cadeau* (this is one of the numerous French words adopted by the Malagasy, and one which they employ but too often) and then went down the hill with our men and baggage to the river bank. The king followed us with a number of armed tribesmen. A large canoe was moored to the bank, and our bearers were just about to place our baggage in it, when, at a signal from the king, one of his followers leaped into the canoe, shoved it off from the bank and paddled out into deep water. And then of a sudden, all his cringing politeness slipped off the king, and this sly old fox of Mahavelo turned on us with an insolent smile, while his people giggled at our discomforture. The king informed Mr. Pearse that it was his custom to make travellers pay tribute, and that he would not ferry us across the river unless we satisfied his demands by paying an exorbitant sum in dollars or the equivalent in cloth or beads. Mr. Pearse of course refused to do this. "Then you can remain where you are," calmly rejoined the king; "my canoe shall go, and you can get no other." Then he proceeded to upbraid us for our gross ingratitude, and threw in our teeth the kindness he had shown us and the presents—worth at least two-pence—he had made us the previous evening.

The river was deep and broad. We might have had to wade along its banks through the swamps for a day or more before we found another canoe. We had no supplies with us and could procure none until we reached a village on the further shore. The situation was therefore an unpleasant one for us, and the old king thought he had us completely in his power. But we were not going to leave a mischievous precedent for future travellers, and we did not waste much time in argument. Mr.

Pearse translated to me the king's remarks, told me that he thought the people meant mischief, and then quietly said; "I now think, Mr. Knight, it is the proper time for you to show your revolver." I therefore drew my revolver and walked up to the king, who began to look uncomfortable. Making a little speech through Mr. Pearse as interpreter, I informed the king that *Vazaha* did not submit to blackmail, but that we were willing to pay him a fair sum, one dollar, if he would ferry us across, but that if he did not accept these terms I would seize the canoe, that I would fire at the man in the canoe unless he at once brought her back to the bank, and that I would stand by with my revolver ready to shoot his majesty, should he venture to interfere, until I had seen all our men and baggage safely off. In that case he would get no pay and would probably lose his canoe. The king, on hearing this, promptly but sulkily submitted, and the canoe in three voyages carried our large party across. We took the king with us on the last voyage, and on the opposite shore, a country of his enemies—some of whom stood round and jeered him—we gave him his dollar and some parting advice as to the proper way to treat travellers.

The king of Mahavelo has long been notorious as a lifter of cattle and a collector of blackmail. Once before at least he has had a white man in his clutches and appropriated the baggage of an unfortunate Norwegian missionary. The Hova Government recently condemned him to pay a fine of several hundred head of cattle; but he has so far disregarded this judgment, which, as he well knows, no Hova officer will venture to execute.

On the evening of March 24th we slept in another robber village, Matsio, at the mouth of the broad River Iavibôla. Here too the king lodged us in the palace that crowns his dunghill and treated us very well. Before we retired to rest he begged us not to be alarmed should we hear much noise in the night, for he had told off a number of men to watch the cattle, and these men would shout at intervals to show that they were awake. He explained that very wicked people inhabited the neighbouring villages, who were supposed to be meditating a raid on his cattle that very night; "for, a short time ago," he naively added, "I stole a number of their cattle, which I have with me here. The rascals may try to recover them."

On the evening of March 25th, as we neared our sleeping-place, the village of Mânambôndro, on the delta of the large river bearing the same name, we were surprised suddenly to see before us, on the summit of a hill, the first signs of civilization we had come across since leaving Fort Dauphin—a bell-tower surmounted by a cross. Here, in a most malarious spot, we found a little mission station, and were hospitably received by Mr. Elle, a young Norwegian pastor who is living here alone among the savages. Some months ago there were three other Europeans in the place, but one, an Englishman, had died, and the others, Frenchmen, had left.

On March 27th we crossed the river Masiânaka, the northern boundary of the Tanosy country, and by dusk we reached Vangaindrâno and had completed the first section of our long journey. As we approached this important centre we noticed that the population became denser and and that there was far more cultivation than in wild Antanosy. We

- passed several villages this day and extensive rice-fields, and finally crossed an immense marsh which extended to the foot of the wooded hill on which Vangaindrano stands. Here we were once more in comparative civilization, for in this town there is a Hova Governor and
- garrison and a considerable Hova colony. From the town an extensive view is obtained in all directions, a somewhat dreary view when the south wind howls, the sky is overcast, and the rain drives, as was the case during our stay. Below the town flows the winding Mananara, here a mile in breadth. Far inland can be seen the deep-green belts of rain-drenched forests. Eastward is the delta of the river, with its dismal mangrove swamps, and still further, some six miles off, the Indian Ocean breaking on the reef. We stayed in the house of Mr. Horne, a hospitable Norwegian missionary. The different Protestant Missions in Madagascar have, by mutual consent, avoided, so far as is possible, any overlapping of their spheres of work, and the south-east coast [up to Vangaindrano] is the undisputed province of the Norwegian Lutherans.
- We found five Europeans—missionaries and traders—residing in this town.

Impatient as I was to push on, we had perforce to wait three days at Vangaindrano. A number of our bearers here decided to leave us, while several were prostrated with fever and unable to proceed further. We found it almost impossible to procure others, despite all the Governor's efforts to assist us. At last we contrived to get together a scratch crew, a mutinous lot of rascals from the scum of the population, who gave us a great deal of trouble before we started. And notwithstanding all the Governor's endeavours to help us, we were forced to agree to give an exorbitant rate of pay before we could get away. Of all journeys I have ever made, that from Vangaindrano to Fianarantsoa, which occupied 12 days, was the most disagreeable, not on account of flooded rivers, heavy rains, rough food, inhospitable natives, and other natural difficulties, which one accepts as a matter of course, but on account of the altogether unnecessary delays, for which the bad disposition of our men was responsible. It is very trying, when one is in a fever of impatience to push on, to be brought to a standstill after half a day's journey, instead of completing the full stage, simply because our followers have come to a village where rum is sold, and are determined to have a drunken night of it. This occurred on two or three occasions.

At last, on March 30th, we collected our men, crossed the broad Mananara, and commenced our march. At Vangaindrano we left the sea coast and turned inland, each day's journey bringing us nearer the central highlands. At first we passed through a country where there was a good deal of cultivation, and the inhabitants, of the Taifasy tribe, were more civilized and friendly than the people we had met on the coast. Our way, for day after day, lay across a monotonous succession of great moory billows, with troughs of morass between, that formation, as of a confused sea, so characteristic of Madagascar, and to which I have elsewhere alluded. But occasionally we traversed great swamps, following the narrow water-alleys, where running streams forced their way through the dense aquatic jungle, on either side of us arums ten feet in height and huge reeds. We also passed through belts of bush, where bamboos, cardamoms, mangoes, guavas, and wild lemons and

oranges grew luxuriantly. In many places beds of streams of dark lava testified to former volcanic action.

On March 31st we came to Ankàrana, a town on the summit of a steep hill, with a Hova Governor and garrison; and on April 3rd we had decided that Māhamānina, another Hova post, should be our halting-place for the night; but we did not get there without a struggle with our rebellious carriers, who were determined to stop at Māhafāsina, a large village on the River Manampātra, to have a drunken carouse. But I lost my patience at last and was determined to have my own way this time. I knew that we were no longer entirely at the mercy of the rascals, for we owed them their arrears of pay, which they would be unwilling to forfeit. I told them I would give them five minutes, and if they had not by that time shouldered their loads and set out again, I would leave my baggage with the village headman and walk on alone to Fianarantsoa. They saw that I meant what I said. They were now among a people not over friendly to them, and if left masterless and without passports, would find it very difficult, if not impossible, to reach their homes. They realized that I, in my turn, was master of the situation, and to Mr. Pearse's astonishment they left the rum and the convivial villagers, and off we marched.

(To be concluded in the next Number.)

E. F. KNIGHT.



VARIETIES.

French Exploration in Madagascar.—In the *Bulletin* of the Paris Geographical Society (1893, part 3) M. Alfred Grandidier gives a sketch of the exploring work done by French travellers in Madagascar during the last thirty years, accompanied by four large-scale maps embracing the greater part of the island, in which all their itineraries are laid down, and numerous sections of the country along the routes given. M. Grandidier's own surveys, carried out between 1865 and 1870, by which the geographical system of the island was for the first time brought to light, form the most important contribution to the map, and since that time he has been in correspondence with many travellers, who have communicated to him the results of their surveys, which are now published in a collected form. The greater number of the itineraries naturally converge on the Capital, and the north-eastern sheet, which contains this, is the most closely filled in. The remainder occur principally in the south-east, and in a band across the island a little below the centre, so that the extreme north, north-west, and south-west are the only parts not dealt with. Besides M. Grandidier's surveys, the chief are those of Roblet, Gautier, Foucart, Catat and Maistre, Anthouard, Douliot, and Besson. The work of explorers of other nations (Mullens, Sibree, Deans Cowan, etc.) is not inserted, though its value in the interest of geography is acknowledged. In the same publication M. Grandidier also publishes the notes of the journeys made by MM. Besson and Douliot in 1891. The former gives an

interesting account of a visit to the stronghold of the independent Tanàla, who inhabit the forest tract east of the escarpment of the central mountains. As related by Mr. Deans Cowan in his paper published in the *R.G.S. Proceedings* for 1882, the retreat afforded by the almost inaccessible mountain of Ikongo has enabled a section of this tribe, under their chief Ratsindrafoana, to resist all attempts of the Hova to subjugate them. The Tanala are extremely distrustful of strangers, and it was only at the third attempt, after long cultivation of friendly relations by presents, etc., and finally by submitting to the ceremony of blood-brotherhood, that Dr. Besson was allowed to ascend the mountain. As far as the village of Andrainarivo, where the king was then living, the slope is about 45°. From this to the top it became nearly vertical, the path being encumbered by rocks and hidden beneath brushwood. The summit, an elevated plateau 5 or 6 miles long, is covered with thick brushwood, among which are the remains of the former village, now abandoned. There is a thick covering of soil, and most crops might be cultivated, except rice, for which the cold is too great. The tribe was formerly disunited, but was brought under a sort of patriarchal rule by the present king (now quite an old man), after his escape from slavery among the Betsiléo. Their social life is primitive, but conforms to natural law, theft being unknown and drunkenness rare. — *The Geographical Journal*, Aug. 1894.

M. Gautier's Explorations in Madagascar.—During journeys made within the past year between the Capital and the west coast of Madagascar, this traveller was able to collect a considerable amount of new information respecting the geology and surface features of the district lying between 18° and 21° S. lat. (*Annales de Géographie*, 1894, p. 499). Both geologically and orographically, the district is divided into zones running in the main north and south, or parallel to the coast. The primary (Archæan) rocks, which form the central elevated region, are divided from the sedimentary formations (limestones, red sandstones, etc.), disposed in bands between it and the coast, by a nearly straight line coinciding with the plateau escarpment. Amid the chaos of mountains which form the latter, a general north and south direction of the ridges has been observed. A line of high ground, however, seems to run east and west, dividing the vast depression of the Onimainty to the south from another probably existing to the north, as indicated by the break in the plateau-wall reported by Mr. Nilsen-Lund. It thus seems that, while the forces of compression have given to the island itself and to most of its ridges a north to south direction, movements of torsion have led to fractures running east and west. This idea is supported by the fact that, just in the same latitude, a break in the continuity of the sedimentary ridges further west occurs. These ridges are divided from the central plateau by a line of depression which runs from the coast at Nôsi-bé in the north, through about two-thirds of the length of the island, being finally closed in by the Bâra plateau to the south. This depression seems to be the hottest part of the whole island. The most important river of this part of Madagascar is the Tsiribihina, and its constant supply of water is due, apparently, to the regulating action of the lakes of its upper basin. M. Gautier's explorations show that its tributaries encroach on the basins of other rivers both north and south. The system of rains is not so regular here as in other parts of the island, the action of the monsoon being apparently modified by cold currents from the southern part of the Mozambique Channel. Storms seem to come mainly from the interior. Vegetation also is distributed in zones parallel to the coast, the forests of the latter (favoured by the moist sea-breezes) giving place inland first to savannahs, with trees scattered regularly over the surface (one or two species predominating), and finally to grass-covered uplands of a dry and desolate aspect. A great part of these uplands forms an uninhabited zone

separating the Hova settled round the Capital from the Sâkalava of the west coast, and is owing rather to the social and political state of the country than to unsuitability of the land for settlement. — *Geogr. Journ.*, Dec. 1894.

Archæological Discoveries in the Lânihay District. In a letter recently received from Mr. H. Hanning, who is working a concession in the above district (N.E. central), he says: "We have found in pits here, dug in the former bed of the creek, a lot of ancient pottery (broken) and many signs of former inhabitants, which must date hundreds of years back, as they were found 30 feet under the surface. I have got also an ancient spear, in very good condition, and of excellent workmanship, found at the same depth below. The place where these various things were discovered presents the following section:—

surface soil
sand
earth
sand and gravel
wash
clay
sand and gravel
quartz gravel
wash
black sand
bottom

"In the same place where the pottery and spear were found the natives also got a piece of old money, but before I could get hold of it, they had tossed it into the stream, being afraid, they said, of the spirits, on account of some absurd superstition they have; so I lost the opportunity of probably being able to fix the date of the pottery and other articles found."

The Malagasy Custom of 'Mirary'.—"Wreathed in mist, the countryside looked so weird that, had mermaids peeped out of the haze and floated in the ocean of the air, we should have scarcely been surprised as we rode along in the hour that is neither day nor night. We were a score of miles from Antananarivo's peopled heights. The sound of human voices was not in our thoughts. We were in the wilderness of nature, spell-bound with the charm of mountain scenery, whose beauty flaunted itself not before us with the boldness that compels recognition, but rather, as the mood impelled, caused the veil o'er its face to be coyly lifted as we rode by. We seemed alone in a waste of waters. Suddenly from all around, from hill-top near and hill-side distant, a melody came floating down to our ears. At first, the sounds were vague and indistinct, but even then there was harmony in them. Presently, they gathered volume and rose and fell as if wafted to us by sea-waves. Plaintive yet defiant were the strains of song. We seemed to be amidst the Syrens of the Grecian seas. Nearer and nearer we approached one group of singers, and we thought of the ancient legend of the singers of the deep. The situation was impressive whilst it was shrouded in mystery, but far more so was it when its explanation was apparent. We were amongst hillside villages and approaching one of them. As we entered it, there in the drear, dank, dark morning, stood a group of women, brandishing spear-like sticks in their right hands, singing the '*Mirary*.' It was a scene, once beheld, never to be forgotten. There was passion in their voices and fervour in their eyes, yet not anger. A morning prayer was evidently being sent up to Heaven. And so it was. The women were singing a prayer-song for the husbands, fathers, brothers, and relations who had gone forth to defend the fatherland.

"From the days of Andrianampònimèrina, the great king of Madagascar, and probably long before that period, in the time of war it has been the custom of the Hova women to pray thus for their defenders. Every morning and evening they sing songs, asking help from the Almighty. Since we heard the songs as we rode through the countryside some six weeks ago, the women of Antananarivo have taken up the national custom. And now, at daybreak and sunset, the Capital rings with the sound of women praying in song. From all the information we can gather, the custom has its origin in a religious ceremony, and it is doubtless of very great antiquity. It is impossible to give here a translation of the songs, as they contain many

difficult Malagasy idioms. But the following verse, which covers the whole meaning of the songs, gives the general purport :—

“Mayest Thou protect them, O Lord !
 May they succeed in their effort !
 May the spear have no chance to hit them,
 Nor the rifle have any harm for them !
 May they capture their enemy !
 Whether they are fighting in the morning or evening,
 May they succeed in defeating their enemy !”—*Madagascar News*.

LITERARY NOTES.

A Fragment of Literary History.—The following is an extract from a short speech made by the Rev. W. E. Cousins at the R. T. S. Breakfast in the Cannon Street Hotel on Tuesday, May 21st :—

“A few weeks before I received the invitation to speak at this meeting it had been my duty to sort and examine a collection of old family letters ; and among them I found one written by myself in May, 1863, describing what I now see to have been a very fruitful day’s work. The letter tells how Mr. Toy, Mr. Duffus, and I spent the greater part of a day in the old mud house at Ampàribè, in which I then lived, correcting the proofs of the first work to be printed by Mr. Parrett on the small press he had brought out. We were all new to the work. Our knowledge of the language was even more scanty than we supposed it to be, and we had had no experience in proof-reading. There, in the old house at Amparibe, we tried our ‘prentice hands at what in after years would bulk very largely in our life’s work.

“And what was this small book upon which we were working ? It was a simple Scripture Catechism composed by the Rev. David Griffiths in the year 1828. This book came nearer perishing in the Persecution than any other important work of the early missionaries. We carried out with us in the hold of the *Mar-*

shal Pelissier more than 20,000 tracts of various kinds, but among them were no catechisms. We did not, I think, know of the existence of this book, till some of our native friends brought us two or three soiled and tattered copies. These we gladly accepted, and from them we constructed ‘copy’ for Mr. Parrett. I see that in my letter I call these worn and much soiled copies ‘seed from which future editions would spring.’ The prophecy has been abundantly fulfilled. The seed has produced harvest after harvest. I am afraid even to guess the total number we have printed, but I am sure it would amount to hundreds of thousands. The substance remains, but many changes have been introduced from time to time. The book has been eminently useful. It is small and unpretentious ; but next to the Bible, and I should perhaps add the Hymn-book (for hymns have a wonderful power of impressing on the popular mind the great facts of our religion), no book has done so much to familiarise the Malagasy people with the outlines of the Christian religion ; and the memory of how, through that day’s work at Amparibe 32 years ago, this work of our honoured predecessor David Griffiths was thus rescued from perishing and sent forth on a new career of usefulness caused me no small pleasure as I was reminded of it by the old letter of which I have spoken.”

New Books on Madagascar.—*Madagascar of To-day. A Sketch of the Island, with Chapters on its past History and present Prospects*; by REV. W. E. COUSINS, M.A.; London (R.T.S.): 1895; pp. 159, post 8vo; Map and Illustrations.—*Étude de Politique contemporaine: Madagascar en 1894*; par MONS. A. MARTINEAU; Paris: pp. 500, 8vo.; also, *Madagascar*; Paris: 12mo. avec gravures et cartes.—*Les Mussulmans à Madagascar*, 2^{de} partie; par MONS. G. FERRAUD. There are chapters describing a Journey across Central Madagascar in *Round the Black man's Garden*; Edin. and London; 1893; by MRS. ZELIE COLVILLE.

In MR. H. E. DRESSER'S magnificent *Monograph of the Coraciidae, or Family of the Rollers* (Farnborough, Kent, folio, pp. 111), 1893, are full descriptions (pp. 53-55, 85-106), together with six large coloured lithograph plates, of the six Malagasy species of Roller, viz. *Eurystomus glaucurus*, *Brachypteracias leptosomus*, *B. squamiger*, *Atelornis pittoides*, *A. Crossleyi*, and *Leptosomus discolor*. (See *post*, p. 379.)

The following portions of M. GRANDIDIER'S great work, *Histoire physique, naturelle et politique de Madagascar*, have been issued during the years 1894 and 1895:—

35^e et 36^e Fascicules, *Histoire des Plantes*, par le DR. BAILLON; atlas, t. iii., 1^{re} et 2^e parties.

37^e fasc., *Histoire des Mammifères*, par MM. MILNE-EDWARDS, GRANDIDIER, ET FILHOT; atlas, t. ii., 3^e partie (Myologie et Splanchnologie).

Les dessins des Reptiles se poursuivent, et les planches des Orthoptères sont à la gravure (Nov. 1894).

36^e et 38^e fasc., forment la 3^e partie du tome ii. de l'atlas de la *Histoire des Plantes*.

38^e fasc., forment la 3^e partie du tome ii. de la *Histoire des Mammifères*.

Sous presse (Oct. 1895), paraître

au commencement de l'année prochaine le 39^e fasc., qui formera la fin du tome ii. de l'atlas de la *Histoire des Mammifères*, consacré aux Lemurs propres.

Madagascar et les Hovas; Paris: 8vo, pp. 284; also, *Madagascar: sa Derivation et ses Habitants*; Paris: 12mo; par REV. PERE PIOLET.—*Madagascar et la Mission catholique*; Paris: grand in 8vo; par REV. PERES COLIN et SUAU.—*A la Cour de Madagascar: Magic et Diplomatie*; Paris: 12mo; par M. MARIUS CAZENEUVE.—*Guide pratique du Colon à Madagascar*; Paris: par MM. GAUTIER, JULLY, ROUIRE, et COMBES.—*Cours de la Langue malgache*; Paris: par REV. PERE BASILIDE RAHIDY.—*La France à Madagascar* (1815—1895); Paris: 12mo; par MONS. L. BRUNET.—*Madagascar et les moyens de la Conquérir*; Paris: 8vo; par COLONEL ORTUS.—*Bulletin de la Comité de Madagascar*, paraissent mensuellement depuis Mars, 1895; articles par MM. GRANDIDIER, MARTINEAU, COLIN, GAUTIER, etc.

Papers and Pamphlets: English.—

REV. R. BARON: "Geological Notes of a Journey in Madagascar;" *Quar. Journ. Geol. Soc.* Feb., 1895; vol. li. pt. i., pp. 57-71, 2 maps (see *ante*, pp. 291-303).—R. BULLEN NEWTON, F.G.S.: "On a Collection of Fossils from Madagascar obtained by the Rev. R. Baron;" *Quar. Journ. Geol. Soc.* Feb., 1895; vol. li. pt. i., pp. 72-91, 2 plates (see *ante*, 304-315).—CAPT. S. P. OLIVER: "The Expedition to Madagascar;" *Unit. Serv. Mag.* Feb., 1895; pp. 484-505, with 3 maps; also, "The French in Madagascar;" *New Review*, May, 1895, also in *Unit. Serv. Mag.* May, 1895.—REV. G. H. SMITH, M.A.: "Mission Work in War-time in Madagascar;" *Mission Field*, May, 1895; pp. 177-179.—REV. J. SIRREE: "The Present Aspect of Mission Work in Madagascar;" *Missy. Rev. of World*, June,

* I am indebted, as before, to M. Grandidier's courtesy for these particulars; the items for last year did not reach us in time for insertion in ANNUAL XVIII. I have also to thank M. Grandidier for the titles of numerous new books and articles in the French language, which are given in these "Notes." J.S.—(ED.)

1895.—BENNET BURLEIGH: Letters on Madagascar in *Daily Telegraph*, Apr.—Oct., 1895.—E. F. KNIGHT: Letters on Madagascar in *The Times*, 1895.—C. W. ANDREWS, F.Z.S.: "On some remains of *Aepyornis* in the British Museum (Nat. Hist.);" *Proc. Zool. Soc.* 1894; pp. 108-123, pls. xiv., xv.—"Tanghin, or the Poison Ordeal of Madagascar;" *Chamb. Journ.*, Nov. 10, 1894, pp. 714, 715.—R. L. YDEKKER, F.R.S.: "On Bones of a Sauropodous Dinosaur from Madagascar;" *Quarterly Journ. Geol. Soc.* Aug. 1895; vol. li. No. 203; pp. 339-336, 5 illust.—HENRY E. CLARK: "The French War in Madagascar;" *Friends' Quar. Exam.* Aug. 1895; pp. 439-452.—H. SEFION JONES: "The French Claim to Madagascar;" *Friends' Quar. Exam.* Aug. 1895; pp. 433-438.

Foreign.—DR. H. CHRIST: "Madagascar. Ein bedrohtes evangelisches Missions;" *Evang. Missions Magazin*, Apr., May, 1895; pp. ? ? 177-195.—REV. PERE COLIN: "Nivellement géodésique à Madagascar;" *Cosmos*, 4 Août, 1894; also, "Travaux géographiques et magnétiques à Madagascar;" *Comptes-rendus*, Nos. 10, 11, 5 et 12 Mars, 1894.—MONS. M. MION: "Rapport sur la Mission hydrographique de Madagascar;" *Ann. hydrographiques*, 1894.—MONS. G. FERRAUD: "Contes populaires malgaches"—MONS. G. FOUCART: "Le Commerce et la Colonization à Madagascar."

MONS. JULLY: "Sur les Tombeaux malgaches;" *Journ. d'Anthropologie*, No. 4, 1894.—REV. PERE PIOLET: "Les Habitants de l'Imerina;" *Rev. de Géogr.*, Oct. 1894.—PRINCE HENRI D'ORLEANS: "A Madagascar."—MONS. GABRIEL GRAVIER: "Les Français à Madagascar;" *Bull. Soc. Normandie Géogr.* 1894; pp. 242-272, 310-347.—MONS. E. GAUTIER: "Exploration de M. Emile Gautier à Madagascar;" *Ann. Géogr.* 1893; pp. 247-281.—HERR M. KLITCKE: "Catats Forschungsreise in Central Madagaskar;" *Globus*, 1893; pp. 375-378, 386-392.—REV. PERE CAMBOUE: "Madagascar: Climatologie, Tremblements de

terre, Cyclones;" *Revue Franç. de l'Etranger et des Colonies*, 1893; pp. 159-167.—MONS. E. LEVASSEUR: Notice of Madagascar in vol. iii. of "La France et ses Colonies (Géographie et Statistics);" 3 vols. Paris: 1890-93.—MONS. A. RAMBAUD: Notice of Madagascar in "La France coloniale: Histoire, Géographie, Commerce;" Paris: 1893.—HERR BURCKHARDT: "Ueber *Aepyornis*;" *Paläontologische Abhandlungen* (Dames & Kayser), vol. vi. (1893); pp. 127-145, pl. xiii.-xvi.—MONS. G. LANDRIEU: "Majunga, son importance, son avenir;" *Rev. marit.* 1894; pp. 310-338.—MONS. E. F. GAUTIER: "D'Ouest malgache;" *Ann. Géogr.* No. 4, 1895; pp. 310-324; map and sketches.—MONS. A. GRANDIDIER: "Les Hova de Madagascar;" *Rev. général des Sciences*, 30 Janv. 1895.—MM. MILNE-EDWARDS, E. GAUTIER, DE FAY-MOREAU, SUBERBIE, FOUCART, DR. LACAZE, et OLIVIER:—"Ce qu'il faut connaître de Madagascar;" articles tirés de la *Rev. gén. des Sciences*, No. 15, 1895.—MONS. H. DOULIOT: "Voyage à la Côte ouest de Madagascar;" *Bull. Soc. de Géogr.* 1895.

Works in Malagasy.—From the L.M.S. Press:—*Ny Teny Fito nataon' i Fesosy Tompotsika teo amin' ny Hazon' i Jafiana* (The Seven Words of our Lord Jesus on the Cross), by REV. W. E. COUSINS; 12mo, pp. 54.—*Hevi-teny amin' ny Filazantsara nosoratan' i Marka* (Commentary on the Gospel of St. Mark), by REV. J. WILLS; 8vo, pp. 235, with map.—*Diksonary amin' ny Baiboly* (Bible Dictionary), pt. iii., HABA—KANONA, 8vo, pp. 288-420; edited by REV. J. SIBREE.—*Teny Soa* ("Good Words," monthly illustrd. magazine), vol. xxx. 1895, pp. 218; edited by REV. J. WILLS.—*Filazanany amin' ny London Missionary Society eto Madagaskara*. 1895 (L.M.S. Mission Year-book, with lists of churches, schools, missionaries, pastors, and evangelists, etc.), 12mo, pp. 63; edited by REV. R. BARON.

From the F. F. M. A. Press:—*Ny Lalàn' ny Syntaksa Frantsay; nasiana Ohatra. Fiz. I.* (The Laws

of French Syntax, with Exercises.) — *Ny Geography Physikaly* (Physical Geography, abridged edition); pp. 46; edited by MISS HERBERT. — *Ny Sakaizan' ny Tanora* ("The Friend of the Young," monthly illustrated magazine), vol. xviii. pp. 192; edited by Mr. H. E. CLARK.

From the **S.P.G. Press.** — *Ny Bokin' ny Apokryfa atao hoe: Ny Fahendren' i Solomona, Eklesiastika, sy Baroka* (The Apocryphal Books: Wisdom of Solomon, Ecclesiasticus, and Baruch); fscp. 4to, pp. 84; translated by REV. F. A. GREGORY, M.A. — *Analysisan' ny Testamenta Taloha* (Translation from "Dr. Pinnock's Analysis of O.T. History"); fscp. 8vo, pp. 350; by MR. A. TACCHI. — *Ilevi-teny amy ny fombu fanao amy ny Komoniona Masina* (Exposition of the Ritual of Holy Communion); fscp. 8vo, pp. 43; by REV. G. K. KESTELL-CORNISH, M.A.

From the **N.M.S. Press**: — *Hevi-teny amy ny Filazantsara nosoratany Lioka* (Commentary on the Gospel of Luke); 8vo. pp. xxii. 337; by REV. K. LINDO. — *Ny Litorgia sy Ritoaly Lotharana* (Lutheran Church Liturgy and Ritual); 8vo, pp. 80. — *Ny Tantarany Dr. Martin Lothara* (History of Dr. Martin Luther); 12mo, pp. 170; translated by REV. TH. SELMER. — *Ny Fombam-pivavahana* (Shorter Prayer-book); 12mo, pp. 25. — *Ny amy ny Fanambadiana* (Concerning the Married State); 16mo, pp. 54; by PASTOR RAJOELA.

NEW MAPS.

Madagascar d'après les travaux d'ALFRED GRANDIDIER. Scale 1: 3,000,000 or 47·8 statute miles to one inch. Paris: Andriveau-Goujon; 1895;

price 1 shilling. — *Carte topographique de l'Imerina* (Province centrale de Madagascar). Par A. GRANDIDIER et REVS. P. ROBLET et COLIN, S.J. Scale 1: 200,000 or 3·1 statute miles to an inch; feuille nord. Mars, 1895. — *Carte de l'Afrique*; scale 1: 200,000 or 31·5 stat. miles to one inch. Sheets Nos. 47, *Antsirana*; 52, *Antanànarivo*. Service géographique de l'Armée. Paris: 1894. — *Carte de la Partie septentrionale d'Imerina*. Par A. GRANDIDIER et les REV. P. ROBLET et COLIN. Scale 1: 100,000 or 1·6 stat. mile to an inch; 3 Sheets. — *Madagascar*: Carte manuscrite très détaillée reproduite en photographie, dressée à l'aide des itinéraires des voyageurs. Par J. HANSEN. Paris: 1895. Scale 1: 750,000 or 10·8 stat. miles to one inch. Price of the 11 sheets, 70 fr.

Postscript. — Just as we are going to press, the following additional items of literary interest come to hand: **Books.** — *Les Droits de France sur Madagascar*; par MONS. GASTON ROTIER; Paris: 1895; pp. 272. — **Papers and Pamphlets.** — MONS. S. MEUNIER: "Le Sol de Madagascar;" *Rev. scientifique*, No. 4, 1895; pp. 231-236. — MONS. A. GRANDIDIER: "Des principaux Noms de Lieux de Madagascar et de leur signification;" *Bull. Soc. Géog. Com. Paris*; t. xvii. 1895; pp. 589-598. — MONS. JULY: "Le Fanompoana, ou la Corvée à Madagascar;" *Ibid.* t. xvii. 1895. — REV. PERE CAMBOUE: "A Madagascar;" *Bull. Soc. Com. Bordeaux*; No. 19, Oct. 1894; pp. 548-557. — REV. W. E. COUSINS and others: "Christian Interests in the Island of Madagascar;" *Chron. Lond. Miss. Soc.* April, 1895; pp. 95-110; portraits and illustrations.

NATURAL HISTORY NOTES.

On Bones of a Sauropodous Dinosaur from Madagascar.—Originally described from the Lower Cretaceous and Jurassic rocks of England and other parts of Europe, the gigantic Dinosaurs commonly known as Sauropods have been subsequently discovered in great abundance in North America, while they have been recorded by myself some years ago from Southern India, and quite recently from Patagonia. We have thus evidence that the group had a very wide geographical distribution; and it is noteworthy that, while several of its North American representatives appear inseparable from their European allies, the Indian and Argentine forms are likewise referable to one and the same genus. Hitherto we have had no evidence of the occurrence of the group in Africa or Madagascar, and it is therefore a matter of considerable interest to be able to bring before the Society the fact that these gigantic Dinosaurs were represented in the island last named.

Before proceeding to the consideration of the specimens themselves, it is important to mention that remains of a Mesozoic reptile of a Jurassic type have already been recorded from the island, and referred to the European genus *Steneosaurus*.^{*} The presumption thus afforded of the occurrence of Jurassic strata in Madagascar is converted into a certainty by the discovery of a large series of molluscan remains belonging to forms characteristic of that period.[†]

The specimens that I have the opportunity of now bringing under the notice of the Society comprise a large series of reptilian bones collected by Mr. J. T. Last, at a spot about 20 miles to the eastward of the Bay of Narinda, on the north-western coast. These bones, which have been purchased by the British Museum, include vertebræ, limb-bones, and portions of the pectoral and pelvic girdles of gigantic land-reptiles; and although the long bones are represented only by their extremities or fragments of the shafts, while the vertebræ are all more or less broken, yet many of the specimens are sufficiently well preserved to afford characters amply sufficient for defining the nature and affinities of the animals to which they belonged.

That the bones are those of Dinosaurs is rendered certain by their huge size; while the same feature is likewise sufficient to indicate that they belong to the sauropodous section of that great group. * *

Of the three anterior caudal vertebræ preserved, one is also much larger than either of the other two, although it appears to have occupied a nearly similar position in the series. These facts seem to indicate that we have remains of more than a single individual to deal with, although I cannot satisfy myself that there is any evidence of a specific difference between the specimens. * *

I accordingly propose to refer the Malagasy Dinosaur to the genus *Bothriospondylus* (which is now for the first time susceptible of definition) under the name of *B. madagascariensis*. * *

The identification of the Malagasy Dinosaur with a type occurring in the Upper and Lower Jurassic of England, but unknown in the Cretaceous, harmonizes with the reference of some of the fossiliferous strata of Madagascar to the former period.—R. LYDEKKER, F.R.S., etc. *Quart. Journ. Geol. Soc.* Aug. 1895.

The Foss (*Cryptoprocta ferox*, Benn.).—These animals must be pretty numerous in the forests, but they do not venture frequently into the open country to the west of the woods. The first exception to this which has come

* R.B. Newton; *Geol. Mag.* 1893, p. 193. † *Id.*; *Quart. Journ. Geol. Soc.* vol. li. p. 78.

to my knowledge was the case of an adult female Fòsa, which was killed at Ambòhidratrimo, a village on the western edge of the upper line of forest, in August of this year (1895). Many fowls had disappeared from time to time, but at length the thief was seen and chased into a little thicket to the west of the village, where she was surrounded by men with spears and attacked by three dogs, which fastened on her. She threw off the dogs with the greatest ease, and they dared not renew the attack. She was so fierce that the men could not get near, and she rushed furiously at my informant, who was carrying a gun; but a well-aimed shot entered the eye and brain and killed her. Retributive vengeance for the stolen fowls was soon taken; the flesh of the thief was cooked and eaten, and was pronounced to be very much superior to the flesh of any of the Lemurs or other inhabitants of the forest. The extreme length of this example from tip of tail to end of nose was 47 inches; tail 20 inches; shoulder-bone joint to end of claws 10 inches; the animal probably stood about 9 inches high when alive.—J. WILLS.

Madagascar Cormorants.—The first and only specimen of the *Vorompisaka* (*Phalacrocorax africanus*) which I have seen was obtained on the eastern side of the upper forest. Like the one mentioned by the Rev. E. O. MacMahon in the ANNUAL for 1894, p. 249, its neck is very long, measuring 15 inches from the base of the beak to the breast; but the breast differs from his, which was "black with yellow spots," in being brightish-brown, slightly mottled with black. The head is very small and narrow, scarcely bulging at all from the neck, which gives it a snake-like appearance when swimming, as it does, with the body under water. From the tip of the beak to the end of the tail it measures 39 inches.—J. WILLS.

Notes on some of Madagascar Rollers.—*Fam. Coraciidæ; Subfam. Coraciinæ.*—

1. **Madagascar Broad-billed Roller** (*Eurystomus glaucurus*, P. L. S. Müller).—This species, which is a large representative of the common African *Eurystomus afer*, inhabits Madagascar from October to March, after which, during the dry season, it leaves Madagascar and, according to Grandidier, passes that season on the east coast of Africa. It has also been obtained in the island of Anjuan [Johanna], and, according to Sir Edward Newton (*Ibis*, 1863, p. 176), one was obtained by M. J. Desjardins on the Francoise river, Mauritius, late in November, 1826, and deposited in the Mauritius Museum. Grandidier writes (*l. c.*):—"This Roller does not remain the whole year in Madagascar, and seldom arrives before the month of October, as already noticed by one of us in 1867 (*Rev. et Mag. de Zool.*, 1867, p. 354), and it is then spread in bands on the coasts. They are especially numerous in the north-east and the north west. They leave after the rainy season, in the month of March, and the Sakalava, who during the night frequently go out to fish for sea turtles, hear them passing during migration, calling above their heads. During the dry season they are not found here, and they then inhabit the east coast of Africa." Sir Edward Newton obtained a specimen at Rànomafàna, and saw it also at Chasmanna (*sic*), and Mr. Roch states that he found this species very numerous in the thin forest close to the village of Fàrafàta, about six miles to the north of Tamatave.

In their habits they appear to assimilate closely with their African ally. Grandidier speaks of them as being somewhat wild, and says (*l. c.*) "that they may be often be seen perched, sometimes singly and sometimes in larger or smaller numbers, on the dead branch of a tree on the edge of a clearing. They remain for long quietly in the same place, looking round and waiting patiently for their prey, and directly they see it they dart on it, catching it in their large bill, and return to their perch. In the morning and evening they play about in the air, soaring in pairs above the trees. Their flight, though heavy and jerky, is strong and swift. Their call, a harsh and disagreeable 'ràkaràka' or 'kàhaka-kàhaka,' similar to that of

the ground, where it scratches, like the gallinaceous birds, amongst the our Common Roller. is often heard during the rainy season in the woods."

Mr. Roch also remarks that "they appear to evince a predilection for patches of forest that have been burnt, where they may be seen, generally in pairs, perched upon the branch of some tall bare tree, sheltering their bodies from view behind the branch, and uttering a hoarse chatter. They did not fly far when fired at or disturbed, but they would dive through the wood with considerable swiftness, again to take their station behind a branch on another withered tree."

Like all the true Rollers, they nest in hollow trees and deposit pure white eggs. Grandidier states that during the pairing season, which is late in October or in November, they bill like pigeons, and that they nest in holes in the trunks of trees, without any special preparation, and different pairs of the same band take up their habitation near each other. The male and female incubate alternately, and when one leaves in search of food, the other remains and keeps watch over the young. At this season they are courageous and will attack and pursue with fury any bird of prey that approaches their nest. Mr. Roch also states that "they nest in the fork or hollow of some tall isolated monarch of the forest, frequently choosing one devoid of any foliage. On the topmost branch one may always be seen upon the watch, while the other forages for food in the neighbourhood. On its cry of alarm the mate quickly appears, and both display considerable courage in repelling the intruder on their solitude, probably a Kite in search of their young. I have frequently seen them do this in the burnt jungle on the left of the road between Nôsiè and Foule Point. They increase their chattering hoarse cry when attacking the Kite." The eggs are described as resembling those of *Coracias garrulus*, being pure white and oval in shape, and measure about 34 by 28 millimetres.

This Roller feeds on insects of various kinds, especially Hemiptera and Orthoptera, on small reptiles, and occasionally, according to Grandidier, on fruit and seeds. The same authority also states (*l. c.*) that "the Sakalava call the Eurystomus *Tsirarakà*, and the Betsimisàraka *Voronkàhaka* ('Kàhaka-bird'), from their harsh cry. The Tankàrana give them the name of *Fitilivàratsa* ('Bird of lightning'), because they arrive in Madagascar early in the rainy season, which is the precursor of tempests."

Subfamily Brachypteraciine.—**Genus Brachypteracias**, Lafr. — The present genus contains only two species and is confined to Madagascar. In their habits they are terrestrial, only occasionally perching on low trees, and inhabit the dense forest; by some explorers they are said to be seldom seen during the daytime, but only early in the morning and late in the evening. Their flight is heavy and spasmodic, and they are not often seen on the wing. Nothing definite is yet known as to their nidification. They feed on insects and small reptiles.

2. **Short-legged Pitta-Roller** (*Brachypteracias leptosomus*, Less.).—First obtained in Madagascar by Dr. Ackerman, a surgeon in the French Navy, and described by Lesson in 1832 from a specimen in the Rivoli collection, this Roller is still a rare bird in collections. Sir E. Newton in 1863 cited a specimen as having been obtained by Capt. Anson near Ampàsimbè, on his return from Antananàrivo; and, according to Grandidier, it inhabits the forests on the eastern side of Madagascar, especially those in the north-east of the island, but it is a rare bird.

With regard to its habits, I find nothing on record beyond what is given (*l. c.*) by Grandidier, who says that it frequents humid, out-of-the-way places in forests, where it may be met with in the morning or evening either singly or, during the breeding-season, in pairs. It is usually to be found on moss and dead leaves in search of its food, which consists of insects, ants, larvæ, caterpillars, etc., and also of small reptiles. Occasionally this species

perches on the low branches of shrubs, but is seldom seen on the wing, and its flight is heavy and spasmodic.

Nothing appears to be recorded respecting its nidification, but I am indebted to the Rev. J. Wills for the following note:—"A native assures me that he has seen the nest of this bird. It was, he says, in a shallow hole in a tree trunk, about a man's height from the ground, and the bird sat with its head and neck outside the hole. Two of my native friends who have shot *B. leptosomus* say that it was on the ground when they first saw it, and it then flew up into a tree and hid behind the branches, so that it was most difficult to get a sight of it, and they added that it will remain until the branch is shaken. I gather that both this species and *B. squamiger* are supposed to hibernate, for, when I was in the east forest in August last, I enquired of the natives about these two large Rollers, and the reply was that "they had not yet come out of their holes."—H. E. DRESSER, F.L.S., F.Z.S.

Extracted from *A Monograph of the Coraciidae or Family of the Rollers*; 1893, pp. 54, 55, 85—105. (To be concluded in the next Number.)

New Species of Mammals recently discovered in Madagascar.—By the kindness of Dr. C. I. Forsyth Major, who has been for several months past collecting in various parts of the island, devoting his attention chiefly, but by no means exclusively, to the extinct fauna, we are enabled to give a list, as well as some particulars, of no fewer than eleven new species of the smaller living Mammalia which he has recently discovered and named.

Dr. Forsyth Major first calls attention to the following errors in the nomenclature of certain Madagascar mammals as given in a list on page 69 of ANNUAL XVII.:—

Lepilemur is more correctly written *Lepidolemur*, since Is. Geoffroy states that he formed the first part of this name from the Latin *lepidus*. *Genetta* ought to be replaced by *Fossa*, and *Viverra* by *Viverricula*. There is no genus of Insectivora called *Eluromys*; A. Milne-Edwards established a new genus of Rodentia, which he called *Eliurus*, with a species, *E. myoxinus* (*Ann. des Sci. nat.* xx. 1885, art. No. 1, bis). The Wild-hog of Madagascar belongs to the African genus *Potamochoerus* (not *Cheiropotamus*).

The new species of Insectivora discovered by myself are five in number, viz.:—

1. *Microgale forimenjy*, sp. nov.; nat. names, *Förimènjy*; loc. Antsirabé, Ampitambe. A new species of *Microgale* was established by Milne-Edwards in 1893, *M. crassipes*, from the neighbourhood of Antananarivo, sent to him by M. Sikora (*Ann. des Sci. nat.* xv. 1893, p. 973).

2. *M. longirostris*, sp. n.; loc. Ampitambe.

3. *Oryzoryctes brevicaudatus*, sp. n.; nat. name, *Antsangy*; loc. Ambohimitombo.

4. *O. niger*, sp. n.; nat. name, *Vôalàvoràno*; loc. Antsirabe, Ampitambe.

5. *O. gracilis*, sp. n.; nat. name, *Antsangy*; loc. Ambohimitombo, Ankéramadinika (from Dr. Moss).

Of Rodentia I have discovered six new species, including three new genera, viz.:

6. *Nesomys Dollemorei*, sp. n.; nat. names, *Vôalàvovôlaména* and *Antsangy*; loc. Ambohimitombo, Ampitambe.

7. *Schoenomys penicillatus*, gen. n. et sp. n.; loc. Ambohimitombo, Ampitambe.

8. *S. minor*, sp. n.; loc. Ampitambe.

9. *Pseudomyoxodon Roberti*, gen. n. et sp. n.; loc. Ampitambe.

10. *Brachyuromys ramirohitra*, gen. n. et sp. n.; loc. Ambohimitombo, Ampitambe. Both this and the following are called *Ramirohitra*.

11. *B. arviculoides*, sp. n.; loc. Ampitambe.

(All indigenous rat-like animals are called *Vôalàvo an-àla*.)

Of the above, Nos. 1, 4, 10, and 11 I first discovered fossil in a small cave

near Antsirabe, where I also found a species of Insectivora and a very curious Rodent, both of which may possibly still exist in some part of Madagascar. Nos. 6 and 11 I believe are already in the British Museum, the first under the name of *Nesomys rufus*, Peters (*Sitzungsber. Natur. f. Freunde*, 1870, 18 Oct.), from Ankafina forest; the second under the name of *Nesomys betsileoensis*, Bartlett, sp. n. (*P.Z.S.* 1879, p. 770).

The genus *Hallomys* (*H. Audeberti*, Jentink, *Notes, Leyden Museum*, I. p. 107, 1879) is probably a synonym of *Nesomys*. Jentink, writing in 1879, ignored the fact that Peters had established the genus *Nesomys* as far back as 1870. The description of the Leyden specimen agrees completely with that of the unique specimen of *Nesomys rufus* in the Berlin Museum.

I ought to mention that the five species of Insectivora discovered by me, and which are shrew-like in appearance, belong to the Malagasy family of Centetidæ. The six species of Rodentia are Muridæ, some of them having their nearest relatives in South America.—C. I. FORSYTH MAJOR.

BRIEF REVIEW OF IMPORTANT EVENTS IN 1895.

POLITICAL.—As our readers already know, diplomatic communication was broken off between the Governments of France and Madagascar towards the close of last year, and an expeditionary force was sent from France in the early part of this year in order to oblige the native Government to accede to the French demands. After a march of several months, during which the invading forces suffered greatly from fever and other diseases, the advance column reached the neighbourhood of the Capital at the close of September. On Monday, Sept. 30th, Antananarivo was attacked, and after two or three hours' bombardment, submission was made, and the French troops occupied the city without further resistance in the evening of that day. A treaty was soon afterwards signed, by which the complete establishment of the French Protectorate was agreed to, while the Queen was still to retain her position. The Prime Minister, Rainilaiarivony, however, was dismissed from office, his place being filled by Rainitsimbazafy. Contrary to many prophecies of evil made very confidently by some, there was happily no disorder, either before the occupation of the Capital, or subsequently to that event. The na-

tive Government retained its authority to the last, and in Antananarivo and its neighbourhood everything soon resumed its usual course after a very few days. Schools and colleges were open until about five days before the taking of the city, and resumed their work in about a fortnight after that event. Large numbers of the women and children, who had fled away to the east and south, fearing dreadful things from the foreign troops, soon learned that there was no cause for fear, and gradually returned to their homes and occupations.

We wish we could close our record here, but about two months after the French occupation of Antananarivo, an event occurred at Arivonimàno, a station in the Friends' Mission district, about 30 miles (a day's journey) to the west of the Capital, which revealed an under-current of feeling against foreign influence and also to Christian teaching, which had not been previously realized as existing. On the morning of Friday, Nov. 22nd, a mob of some 2000 people (so it is said) belonging to a tribe called Zanakanti-*tra* attacked the mission premises at Arivonimamo, and brutally murdered Mr. and Mrs. Johnson and their little girl. The whole of the property in the house, church, cottage-hospital,

and school-rooms was either stolen or destroyed, and the station left a blackened heap of ruins. The Rev. E. O. MacMahon and his wife and family had also a narrow escape from the ruffians and endured considerable peril and hardship before reaching one of the Norwegian mission stations in Vakinankaratra. Their station at Ramainandro, belonging to the Anglican Mission, was attacked and completely destroyed. Mr. H. F. Standing and his wife and family were also in much peril for some days before they were able to get away from their station (belonging to the Friends' Mission) in Mandridrano (60 miles west of the Capital), but they happily escaped all harm and got safely into Antananarivo. The people of their district did not make common cause with the insurrectionists.

A small French force was soon sent out to put down this rising in the west, but it was attacked with fanatical bravery by the rebels, who seemed to have perfect confidence in their 'charms,' and even held out their *lamba* to catch the bullets! Numbers were, however, killed, but most of the leaders, it is feared, have escaped, and they may yet cause much trouble in stirring up disaffection in other parts of the country.

We cannot close this brief notice without recording our appreciation of the great humanity shown by General Duchesne in the conduct of the campaign, as also of the excellent discipline of the French troops, as shown by the absence of all rowdiness and disorder amongst them in the Capital. We are also grateful to the General for the consideration he has shown towards those of other nationalities than his own. General Duchesne will be always remembered in this country as an able and kindly-disposed man.

OBITUARY.—The death of Mr. W. Johnson of the F.F.M.A. has been mentioned above, but a few words

must be added here about our deceased friend. Mr. Johnson came out to Madagascar in 1871, and in the following year he married Miss Sewell, daughter of Mr. J. S. Sewell, who commenced the Friends' Mission in this country. Mr. Johnson had charge for several years of the Friends' High School at Ambôhijato, and threw great energy and enthusiasm into all his work. He was an accomplished artist and trained many of his pupils in drawing and painting, showing that there existed much artistic talent in numbers of the Malagasy youths. Mr. Johnson was also an architect of considerable attainments, and many buildings will long remain in Madagascar as proofs of his taste and skill in design. Among these are the High School at Ambôhijato, the Hospital at Isoavinandriana, the village church at Anjanahary, the new Girls' Central School, Andohalo, and several mission houses in the Capital and elsewhere. Our friend was further an accomplished geographer, and we owe several excellent maps of Madagascar generally, and of certain districts in Imèrina, in more minute detail, to his industry and skill. Above all, Mr. Johnson was an earnest and faithful missionary of Christ, and we, in common with all who knew him, deeply lament his loss, as well as that of his loving affectionate wife and his innocent child, all removed in such a terrible and sudden manner from their work on earth. In the presence of such a mysterious event, we can only pray with Elihu: "Teach us what we shall say, for we cannot order our speech by reason of darkness."*

RELIGIOUS.—In the month of May the new church at Analakely, which had been for five or six years in process of construction, was dedicated for divine worship in the presence of the Queen and Court and large congregations. Some description of the building has been already given

* Readers of the ANNUAL will remember several interesting contributions by Mr. Johnson to earlier numbers of the magazine: e.g. "Farahantsana, Itasy, and Ankàratra," No. I. p. 58; "An Underground River," No. IX. p. 83, with map; etc.

in a paper in this ANNUAL (see p.317,) so it need only be said that about 4000 dollars have been expended in the erection of this church, and many of the interior fittings were special gifts. The church, with all its furniture and decoration, was designed by the Rev. J. Sibree, the missionary in charge; and all the woodwork and ornamental stonework was carried out under his personal superintendence. The building is another addition to the many substantial and ornamental structures now to be seen in the Capital of Madagascar.

REV. W. E. COUSINS, M.A. (Oxon).—

All friends of the Rev. W. E. Cousins will be pleased to know that in June last the degree of Master of Arts (*honoris causa*) was conferred upon him by the University of Oxford, in recognition of Mr. Cousins's contributions to a fuller knowledge of the Malagasy language, and also of the scholarship shown during his many years' labour as Chief Reviser of the last version of the Malagasy Scriptures. All who are acquainted with Mr. Cousins's work will agree that this is a well-deserved honour, and we heartily congratulate him upon this recognition of his services to philology and in Bible translation.

METEOROLOGICAL OBSERVATIONS AT ANTANANARIVO.

THE readings given in the following columns were taken at the L.M.S. College, Fàravohitra, the northern suburb of Antananarivo, 4,700 ft. above the sea-level, and may, I think, be regarded as the minimum readings for almost any situation in the Capital, owing to the continual exposure of the College to the E. and S.E. winds; hence the readings here, though in a tropical latitude, are even lower than in England in midsummer.

Immediately below is appended a summary of rainfall, extremes of temperature, and mean average monthly temperature for day and night, with the mean temperature of each month. The rainfall is compared with the average for 13 years, and the mean temperature with that of 9 years.

The total rainfall for the year 1894-5, ending October 31st, has been 57·98 in., as compared with 53·94 in., the average for the last 15 years. The average mean temperature throughout the year has been 64°·3, almost exactly the same as last year's (64°), and 2° above the annual average (62°·04). The extreme variations of the thermometer have been from 46° Fahr. to 83° Fahr.

J. SHARMAN.

	Rainfall	Average	Average	Average	Highest	Lowest	Mean	Average
	for 1895.	for 15yrs.	max. temp.	min. temp.	max. temp.	min. temp.	temp.	temp. for year.
1894								
Nov.....	4·06	5·09	75·13	60·62	83	54	69·46	66·13
Dec.....	15·59	12·59	77·77	55·22	83	59	70·5	68·13
1895								
Jan.	13·06	11·75	76·29	65·21	82	53	70·75	68·08
Feb.....	10·73	9·99	77·1	61·22	82	59	69·11	67·75
March ...	10·25	6·61	73·11	62·21	80	60	67·66	66·39
April ...	1·40	1·71	71·52	58·21	77	58	64·86	60·91
May.....	·13	·62	64·29	55·14	72	52	59·71	59·95
June.....	·2	·52	63·7	52·22	64	49	57·64	54·87
July	—	·16	58·30	47·15	69	48	52·72	53·63
Aug. ...	·7	1·01	61·7	53·28	70	46	57·17	54·87
Sept.....	·48	·83	68·46	55·14	71	49	61·80	59·34
Oct.....	1·38	3·08	77·46	63·5	83	54	70·25	64·54
Totals and								
Means.	57·98	53·94	70·4	57·42	77	53·41	64·3	62·04

NOTE.—In order that these returns may be completed so as to issue the ANNUAL by Christmas each year, as well as to bring them in accordance with those from distant parts of the island, the time of observation is altered from Jan.—Dec. to Nov.—Oct. This has the advantage of bringing the whole of each rainy season into one account each year. The Meteorological Tables from Mojangà and Ambàhy have not reached us, we regret to say, probably owing to the unsettled state of the postal arrangements.—EDS.

THE
ANTANANARIVO ANNUAL
AND
MADAGASCAR MAGAZINE.

A RECORD OF INFORMATION ON THE TOPOGRAPHY AND NATURAL PRODUCTIONS
OF MADAGASCAR, AND THE CUSTOMS, TRADITIONS, LANGUAGE,
AND RELIGIOUS BELIEFS OF ITS PEOPLE.

EDITED BY THE
Rev. J. SIBREE, F.R.G.S.,
AND
Rev. R. BARON, F.G.S., F.L.S.,
Missionaries of the L.M.S.

No. XX.—Christmas, 1896.
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THE
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TANGHIN, OR THE POISON ORDEAL OF
MADAGASCAR.

THOUGH ordeals by fire and water are, or have been, national judicial institutions of world-wide distribution, recourse to deadly poison as a legal remedy has not met with such universal recognition. With the exception of the 'red water' ordeal of the Papuans, and the 'bitter water' of certain Melanesian tribes, poison ordeals are strictly confined to the Dark Continent, of which the ordeal of the Calabar bean, as practised by the negroes of Old Calabar, is the most popular and well-known instance. Although Livingstone, Du Chaillu, and other African explorers mention the use of certain roots for poison ordeals by Central African tribes, and Guinea natives are known to use a form of *strychnos* for the same purpose, we are justified in stating that no exact analogue of the Tanghin of Madagascar can be found in any of the ordeals practised elsewhere.

The source of the poison—from which it also derives its name—is the "*Tanghinia venenifera*," a tree indigenous to Madagascar.* Flacourt, Governor of the French settlement at Fort Dauphin in the seventeenth century, wrote an account of the island of Madagascar on his return to France; and in this quaint and interesting work a description of the 'tangèna' is given, which evidently was not the modern form of the ordeal, but was more akin to the Melanesian 'bitter water', in that death never resulted from the direct action of the poison. Evi-

* *Tangèna*, however, is a native Malagasy word, and is used not only for the poison ordeal, but also for other ordeals, as *tangèm-boay*, i.e. 'crocodile ordeal'. It is also found in the Sakalava name of a species of crab, which has one claw larger than its whole body or carapace, and is called *kavatangèna* (*Gelasimus marionis*).—EDS.

dence from various sources leads to the conclusion that the *Tanghinia venenifera* was first used for judicial purposes at the beginning of this century, from which period it was constantly employed until the abolition of ordeal by poison in 1864.

The Tanghin tree is somewhat like a chestnut in appearance. As its foliage is a dark-green hue, and its flower of a gorgeous crimson, it presents a very attractive sight during October and November. Botanists would more accurately describe the tree as belonging to the order of the Apocynaceæ, and its fruit as a drupe; but as botanical names only appeal to the initiated, we will continue the description without employing them.

About the middle of November the flowers fade, and a small green fruit appears, which rapidly increases in size until Christmas, when the fruit attains maturity. It is then something like a large yellow egg-plum, though the skin is not of one uniform tint, but is streaked with varying tints of red and brown. The pulpy portion of the fruit is of a repulsive gray colour, and possesses a correspondingly disgusting taste; and in the centre of this is found the kernel. The kernel is the poisonous part of the fruit, and has been found to contain a most violent poison, which is not strychnine, nor, in fact, an alkaloid or nitrogenous compound at all, but a substance which is probably unparalleled in the whole range of toxicological chemistry.

The Tanghin was reserved for the detection of such crimes as treason and witchcraft, or anything directly or indirectly due to the intervention of the supernatural; and as such crimes were frequent, and the circle of suspicion wide, it acted as a constant drain on an already scanty population. Ellis computes that three thousand persons perished annually under this ordeal, that a tenth of the entire population drank it in their lives—some, four or five times—while, of those who drank, more than half died on the spot or from the after-effects.

For minor offences the ordeal was performed thus: If two parties disputed on a subject on which no direct evidence could be got, each selected a dog from a pair of equal size and condition, and both animals received similar doses of Tanghin. The party whose dog first succumbed was adjudged to be in the wrong; and if both dogs expired simultaneously, the case was decided on a basis of equality; or if this was out of the question, the ordeal was repeated.

In the case of serious crimes, however, being alleged against any one, the ordeal was much more severe, as the persons suspected had themselves to swallow the Tanghin. The ordeal was a truly national institution, government officials called *mpañdron-dôha*, or 'cursers of the head,' or, more colloquially, *mpam-pinona*, that is, 'those who cause to drink', administered the

ordeal; and to be a *mpampinona* was considered an honourable position. The *mpampinona*, by personal and secretly transmitted experience, could so manipulate the ordeal that their clients had a chance of escaping with little more than a violent fit of vomiting, while they could insure with deadly certainty the removal of an obnoxious individual. The Tanghin thus administered became a most powerful agent in carrying out the crooked ends of an unscrupulous state policy; and we need hardly say that the government in power freely availed themselves of this convenient method for the removal of prominently obtrusive members of 'the Opposition.'

A great gathering always collected to witness a Tanghin ordeal, the centre of attraction, of course, being the *mpampinona*, his executive, and the victim or victims. To inspire confidence, the poison was prepared in public by the *mpampinona*, who took two kernels of the fruit of the *Tanghinia*, and having split each carefully in half, he ground two halves of different kernels—to insure uniformity of poison—on a stone with a little water. A white emulsion is thus obtained, which on dilution with the juice of a banana leaf, partially dissolves. Having administered this potion, the 'curser of the head' placed his hand on the brow of the victim, and broke forth into a wild stream of denunciation and invocation, beginning; "*Ary mandrenesa, mandrenesa, ry Manamango*" ('Listen, listen, O Manamango [the Poison spirit or 'Searcher of hearts']). Thou hast no eyes, but thou seest; ears hast thou not, but thou hearest; a round egg brought from afar, from lands across the great water [possibly an allusion to the introduction of the poison ordeal by the Arabs], thou art here to-day. Hear and judge, for thou knowest all things and wilt decide truly. If this man has not done aught by witchcraft, but has only employed natural power, let him live. If he has only committed a crime against the moral code [in the original, a long category of these offences is given], slay him not; but by the door where down thou wentest, return, O Manamango! [The poison is a violent emetic.] But if he has employed witchcraft, then hasten, stay not, end him, slay him; choke him; seize his vitals in thy deadly clutch, and destroy at once and for ever the foul life of this wicked man, O Manamango, thou that knowest all things, and who searchest the secret hearts of all men."

Some years ago a friend of the writer's took a verbatim copy of the above harangue, as reproduced by a native who had twice successfully undergone the ordeal, and on whom the whole ceremony had left very vivid and lasting impressions. The above is a fair translation of the leading points in the argument, which in the original are fully expanded by minute details as

to the crimes within and the misdemeanours without the jurisdiction of the Tanghin, as well as by very horrible minutiae of the fearful agonies to be inflicted on the guilty, and the exhilarating prospects for the self-righted innocent.

This adjuration ended, the accused was forced to swallow three pieces of fowl-skin, each about an inch square, without touching them with his teeth. Copious draughts of rice-water were then given to wash down the three pieces of skin; and when this was at last effected, warm water was added to accentuate the emetic character of the poison. If the three pieces of skin were discharged intact, Manamango had decided on the innocence of the suspect; and his friends were then free to do anything they pleased to increase his chances of recovery. If the three pieces were retained, or were only partially discharged, the man was declared guilty; and one of the executive put an end to the writhing and speechless agony of the unfortunate victim by a blow from a wooden rice-pestle or *fanôto*.

Establishment of innocence by this method more often than not resulted in death from the after-effects, unless special precautions had been taken, or the subject was possessed of an abnormally tough constitution. Practised experts, by using-immature fruit and selecting kernels of light colour, which are not so poisonous as the redder ones, and also by skilful arrangement of things, could secure a satisfactory termination—from the patient's point of view—of the ordeal, so that it became quite noticeable that filthy lucre could often tempt the immaculate Manamango to favourable decisions. Notwithstanding this obvious corruption, the masses of the people believed confidently in the Tanghin and in Manamango; and even now, many natives would avail themselves of it, if allowed to do so.

In 1857, a Frenchman named Laborde, for many years subsequently French Consul, and a trusted friend of the native Government, was arrested and charged with treason. He appealed to the Tanghin ordeal; but the Government refused him that privilege on the ground that he was a foreigner, and so he was banished from the island for some time.

It is thought that M. Laborde had cultivated a provident intimacy with the chief *mpampinona*, and consequently was quite prepared to undergo the necessary gastric convulsions, if thereby he could 'quash' a charge of high-treason. However that may have been, we think M. Laborde was the only European who had sufficient confidence in this somewhat risky tribunal to be willing to stake his existence upon it.*

H. H. COUSINS.

(From *Chambers's Journal*, Dec. 1894.

* For some other particulars, including results of certain experiments as to the physiological effects of the *tangena* poison on various animals, see ANNUAL XIV., p. 129.—EDS.

IMERINA AND ANTANANARIVO 120 YEARS AGO,
AS FIRST SEEN BY A EUROPEAN TRAVELLER.

IN the early part of the present year a Congress of some of the learned societies of France was convened, at which, among a variety of papers on all kinds of subjects, an address was delivered by Mons. Alfred Grandidier, the well-known traveller and scientist. In this discourse, instead of describing recent geographical research and discovery in Madagascar, M. Grandidier took the opportunity of rescuing from ill-deserved neglect and obscurity the name of one of the pioneers of European travel in the country, Mayeur, who was the first European to cross the island from the north-east to the north-west coast (in 1774), and the first to visit the then unknown Hova tribe and their country and capital (in 1777, and again in 1785). M. Grandidier remarks that if subsequent writers had quoted and followed the reliable accounts given by Mayeur instead of the fictions of a very different writer, Leguevel de Lacombe,* many errors would have been avoided, errors which have often given rise to serious consequences. From a study of his writings M. Grandidier pronounces Mayeur to have been a man of good judgment and a sagacious and conscientious observer, and adds that on first reading his accounts, one can appreciate their great importance to geography and ethnology and their scrupulous truthfulness.

I think that a few extracts from M. Grandidier's paper, especially those describing Mayeur's visit to the then utterly unknown Îmerina province and its capital, together with the impressions he received of the Hova tribe, up that time only known by report, will not be uninteresting to the readers of the ANNUAL. They give us, as will be seen, a vivid sketch of this capital city of Antananarivo—now so well known to hundreds of Europeans, and by photographs at least fairly familiar to much larger numbers—as it appeared a hundred and twenty years ago to a French visitor. And we also get a few 'snap-shots' at these Hova people, whom we know so well, and whose good and bad qualities have since been described by so many scores of writers, but who were then only a newly-discovered tribe in the interior of the great unexplored island, and were even then, as we shall see, marked by many of the same qualities which have always distinguished them from the other peoples of Madagascar. It may help us to fix the date of Mayeur's first visit to Antananarivo in our minds by remembering that it was during the early years of George the Third's long reign, and almost simultaneous with the declaration of American Independence; and while such men as Pitt and Burke and Fox were statesmen, and when Johnson and Garrick, Reynolds and Hume were not merely names, but living personages in English life and society.

Mayeur lived for about thirty years in Madagascar (1758-1787), and during this long period he occupied the position of interpreter to the

* Amongst other extraordinary statements, Lacombe tells his readers that Antananarivo is traversed by a multitude of small streams, so that the houses are built on platforms raised two feet above the ground to avoid the frequent inundations! the truth being that the city hill rises from 400 to 700 feet above the surrounding rice-plains.

French Government at their establishments on the north-east coast. He spoke the Malagasy language perfectly, and had a very full acquaintance with the manners and customs of the people.

After having lived a long time on the east coast, he was sent in 1770 by Laval, the manager of government treaties, to the Ankay district, in in order to make a purchase of slaves. No European had yet penetrated into this portion of the island, which is the home of the Bèzànozàno. After some debate among the natives as to the comparative advantages of killing their visitors, or agreeing to their request for trading on friendly terms, the latter course was decided upon, and a treaty was concluded.

In the following year another journey was made by Mayeur to the very centre of the island, into Andrantsay, in the valley of Bètafo (Vàkin-ankàratra), but of this he appears to have left no account.

Subsequently to this (in 1774) he was employed by the celebrated and bold Polish adventurer, Baron de Benyowski, to go on a mission from Antongil Bay across the island to the north-west coast, to the Bay of Bèmbatòka, and endeavour to form a friendly arrangement with the tribes. This project, however, was quite unsuccessful. As M. Grandidier remarks: "The low and saddening superstitions which then prevailed among the Sakalava, and which prevail up to the present day, were for Mayeur, as they have since been for so many other travellers, the cause of endless difficulties and led to the eventual failure of his mission." He therefore returned quickly to Louisbourg (Antongil Bay), and probably saved his life by his rapid movements, for as the Sakalava king's father died a few days after the departure of the French embassy, great efforts were made to overtake and bring back Mayeur and his followers. Had this attempt succeeded, their lives would probably have been taken in revenge for the evil they were supposed to have brought upon the country. Here M. Grandidier observes: "A hundred years later, I found among the Sakalava the same anarchy, the same barbarism, and the same debasing superstitions as those of which Mayeur has drawn such a faithful picture; these are, in fact, the tribes who oppose an unconquerable resistance to every attempt made to civilize them, and who, far from meriting the interest which has been shown in them by so many authors up to 1870, are a most difficult and obstinate people to deal with."

Mayeur did not remain inactive for long, for, after resting only two months, he set out again for the extreme north of the island to endeavour to make a friendly alliance with the king of the Antankàrana, and to examine the agricultural and commercial value of the country. Here also he found the people very unfriendly, and he would probably have fared ill but for the protection of their chief. Before returning home Mayeur pushed southward along the coast as far as Nòsibè, whose advantages as a port of call he pointed out.

In the year 1777 Mayeur was commissioned to explore the centre of the island. From Foulpointe he followed the sea shore as far as the mouth of the Mangóro, from which point he turned to the interior, crossing, for more than a hundred miles, chain after chain of hills running parallel to each other, without any break, and forming a series of very precipitous walls, whose sides were clothed with luxuriant jungle

and impenetrable forest. After crossing the watershed of the country he entered, on the 6th of July, a district completely bare of wood, and cold at that time of the year, where he travelled for seven days before reaching the valley of Andrantsay. "The soil of all this plateau," says Mayeur, "is unfruitful, trees are entirely absent, and the inhabitants can hardly obtain the first necessities of life, for there is neither timber to build with, nor wood fuel to warm themselves with or to cook their food. The plain which is watered by the Andrantsay is covered with large and beautiful rice-fields, which make a striking impression on emerging from the dry deserts traversed before reaching them. The vine grows wild there, but gives little fruit; there are no trees but those which have been planted here and there by the natives; and the only shrubs which one sees are the *ambàrivàtry*,* cultivated in the fields for the silkworms, whose strongly viscid cocoons are divided with difficulty and can only be used for coarse stuffs. The pasture grounds are poor, and there are very few cattle. All the villages are built on hills, and are defended by means of fosses and earthen walls."

Although the population of this district had never yet been brought in contact with Europeans, they received Mayeur's visit favourably; and the king, knowing that other tribes had obtained arms and gunpowder from the French, readily accepted proposals of friendship.

Mayeur, however, remarked with much regret that, quite contrary to his expectations, this part of the island offered no commercial advantages. He was preparing to return, when he received a visit from an unknown person, who was accompanied by eight followers. This stranger, after satisfying himself that no one could hear him, confided to Mayeur that he came in the name of his master Andrianambóatsimarófy, the powerful king of the Hova, to invite him to visit Imerina and his capital Antananarivo. He added that his king greatly regretted that the French preferred to make treaties with the coast chiefs, and had never come into his kingdom, and that he would be happy to enter upon frequent and friendly relations with them. As soon as the visitor had left, one of Mayeur's porters who, in the preceding year, had made a journey to Antananarivo, came to tell his master that this unknown stranger was no other than Andrianamboatsimarofy himself, the great king of the Hova! So when he returned on the morrow, Mayeur told him that it was useless for him to keep up the fiction any longer, and that, knowing who he was, he accepted his invitation with pleasure. At these words the king acknowledged his rank, but begged Mayeur to keep his secret, saying that having heard of his arrival, he could not resist the desire to come and see him.

In order to avert the suspicions of the Andrantsay people, Mayeur set out, on the 1st of September, on the road which he had followed in coming up the country, as far as Vótovórona, where, in accordance with what had been agreed upon, he found, on the 4th, an uncle the Hova king with an escort of fifty men. Taking then the road to the north, he arrived two days afterwards at the valley of the Lémpona, which extends to the south of the mass of Ankàratra, and where Andrianamboatsimarofy's very large camp had been fixed. The king went

* *Crotalaria cytisoides*, Bojer; a herb used also as a medicine.

to meet him as soon as he saw him appear, embraced him and led him into the lines. The following day the king broke up the camp and marched towards Antananarivo, which was about 60 miles distant, in a north-north-east direction. On the road the king introduced with some pride one of his subjects, who knew how to make gunpowder, weak and dirty stuff, it is true, but yet powerful enough to send a ball about 80 feet.

Further on the way, to the south of Tànjombàto, Mayeur passed a large open space, where several hundred Hova were actively engaged in buying and selling the different productions of the country: slaves, oxen, sheep, goats, pigs, poultry, cotton, silk, either raw in the cocoon, or as silk cloth dyed with various colours, other stuffs of different kinds, planks, timber for house-frames and roofs, pig iron, household furniture and pottery, weapons, provisions of all kinds, and fruit, etc.* These great fairs, full of life and movement, which are held on every day of the week in some part of Imerina, and where every one can provide himself according to his needs and his tastes, naturally greatly astonished Mayeur, who says, however, that the cattle for sale were not very abundant, because this part of Madagascar lacks good pasturage. The oxen can only find sufficient herbage from December to April, that is, during the rainy season; during the remaining part of the year they are fed with rice straw, which is also used for fuel.

The king's entrance into Antananarivo was made with great ceremony, and with much firing of muskets. Mayeur was lodged in the royal courtyard, and his porters received permission to help themselves at pleasure from the king's rice-stores, which then held 10,000 measures, and they also had oxen given to them.

At this time Imerina was divided among several chieftains; to the north, Andrianjafy was the ruler; in the north-west, Andriambèlo; in the east, Andriamohàra, etc.; but the most powerful of all was Andrianamboatsimarofy, who had 1587 villages under his authority and could put a force of 20,000 men on the field.

The Hova, says Mayeur, had not the warlike disposition of the other tribes of the island; mild and peaceable in character, they preferred to devote themselves to industry and to useful occupations, but they were greedy of gain, artful, and very much given to thieving, pillaging and cheating travellers, and selling by false weights and measures. Moreover, their king, seeing plainly how much these barbarous customs would hinder the formation of commercial intercourse with Europeans, held, in Mayeur's presence, a great assembly, at which, after having adjured his subjects to renounce all these evil practices, he made them take a solemn oath that they would no longer steal or pillage, or make bad money, but would, on the contrary, be hospitable to travellers, and would in the future trade honestly. He concluded his address by declaring that he would put down vice and promote justice, in order that his people might become worthy of the esteem and confidence of all. "I am aware," he said to Mayeur at the close of the great meeting, which had lasted from 9 o'clock in the morning to 5 in the afternoon, "that these reforms which I wish to promote will not take effect so quickly as one could desire, for my predecessors have treated this people

* This was, of course, the great Saturday market held a mile or two south of Tanjombato.

with a weakness and indulgence which have emboldened them in wrong-doing; but I shall nevertheless eventually carry out my intentions."

Here are the principal observations made by Mayeur upon Imerina and its inhabitants during this, his first visit: "Nothing but mountains are to be seen in every direction, except only to the west of Antananarivo, where there extends a vast plain, fertile with rice. The soil of these mountains, which are bare of wood, is dry, and it is only at the cost of hard and constant labour that the Hova, who spare themselves no trouble, manage to get a living out of it. Their diligence, their perseverance, their skill in bringing from a distance the water necessary for the irrigation of their rice-fields, are worthy of the highest praise. The only trees one sees there are those which have been planted in the fosses of the villages, and their number is not great; the nearest forests are distant two days' journey. The banana is here only small and yields but little fruit; yet it is largely cultivated, because the fibres of the stem are used for weaving articles of clothing. The Hova have much skill in weaving cloths of cotton and of coarse silk. They are also skilful in working iron, forging this metal, which is abundant in the centre of the island, in well-arranged furnaces, and producing hatchets, spades, spears, knives, needles, etc.; they can even make all the parts of a musket; but their cannon are defective, because being welded together lengthwise, they are liable to burst. Their houses are built of clay, and occasionally of wood. Buying and selling is carried on by means of pieces of money cut up small, which they weigh in little pairs of scales, which are very exact, and which they also manufacture themselves.

"All the free people, men, women, and children, pay half a dollar (*demi-piastre*) per head every year to the king, as well as a tenth in kind of their domesticated animals, and sixty pounds of rice. The slaves are taxed at the rate of a quarter of a dollar. The nobles who have feudal holdings collect for their own benefit the half of these rents."

Mayeur, who was greatly surprised to see the social organization and the industry of the Hova, concludes by saying: "The Europeans who frequent the coasts of Madagascar would hardly believe that in the centre of the island, a hundred miles distant from the sea, in a country up to the present time unknown and surrounded by wild and savage tribes, there is more enlightenment, more industry, more efficient government, more advanced civilization, than on the coasts; and yet the coast tribes, having for long been in constant connection with Europeans, ought to have much increased in knowledge and intelligence;" and he adds, prophetically: "I do not doubt that the Hova will accept with friendship and intelligence those Europeans who may come to instruct them in the practice of useful arts, for no other tribe of Malagasy have so much aptitude for doing work." At the same time, after having fully acknowledged these good qualities, he says, that under a mask of great sweetness and extreme politeness, they are hypocritical, greedy, and thievish.

During his stay in Antananarivo several of his porters were taken ill with the small-pox. The king ceased not to show them genuine sympathy, constantly enquiring after them, and every day sending them provisions and fruit. Several of them dying, he caused them to be honourably buried, ordering that three oxen should be killed for each of them.

On the 1st of November Mayeur left Antananarivo, full of thankfulness for the cordial and generous welcome which he had received, and which was so different from the reception he had had among the Sakalava and the Antankarana. After traversing 30 miles over a bare and dry district, he crossed a little belt of forest, about three miles broad, which forms the eastern boundary of Imerina, and travelled across the broad open valley of Ankay, where the Bezanozano rear large numbers of cattle. He reached the sea by descending the steep slopes of the coast chain of hills, along slippery and muddy paths, sometimes crossing dense forests, sometimes through thick jungle, filled with thousands of small leeches, which fastened upon his legs and were a cause of great annoyance.

The project which Mayer had formed of returning soon to form permanent commercial relations with this industrious people, who had had so greatly interested him, could not be realized on account of the difficulties which occurred at that time among the French officials in Madagascar. So it was not until eight years later, on the 19th of July, 1785, that he returned to Imerina. Two of the principal Hova chiefs, his friend Andrianamboatsimarofy, king of Antananarivo, and Andriambelonjafy, the king of Alasóra, were then at war; and Mayeur was present at the curious manœuvres of the fighting carried on between them. It was the custom for the enemies to fix by mutual agreement the day and place where they would fight. At the appointed time the rival armies, divided into a certain number of platoons, marched to the encounter; when they got near to each other, a number of soldiers advanced, fired their muskets, and then ran back to gain the shelter of their respective platoons. While they reloaded their guns, others carried out the same manœuvre, which they repeated for an indefinite time, until one of the two armies retired on account of its numerical inferiority, or from the losses it had sustained. Each one then returned home for a week or two, living there as quietly as in times of peace, and being solely occupied with agriculture or trading. Then they began to fight afresh.

The first fight at which Mayeur was present took place on the banks of the Ikópa, between Alasora and Antananarivo. It lasted from 10 o'clock in the morning until 4 in the afternoon, without victory declaring itself for either of the two armies. There were 12,000 soldiers drawn up, and the killed and wounded on the battle-field amounted to a total of 22 men. At the end of ten days, Andrianamboatsimarofy having received a reinforcement of 3000 men, and finding himself at the head of 9000 or 10,000 soldiers, marched against Alasora. The enemy defended himself courageously, and the fighting was still hot, when an immense cloud of locusts suddenly obscured the heavens, and settled down upon the surrounding ricefields. Firing ceased immediately, and all the combatants rushed pell-mell to collect the devastating insects which the Malagasy like so much as food. The women, the children, and the old men came out without delay from the villages where they had remained hidden, and mingled with the soldiers, so that in less than a quarter of an hour, the country was covered with no fewer than 20,000 people, creeping on all-fours and busily engaged in catching the locusts. It is the custom in Madagascar to suspend hostilities before a plague which, as the king said to Mayeur, menaces the entire people, while a war, oftener than not, is only interesting to those who carry it on.

Notwithstanding the local matters engaging the Hova king's attention at that time, Mayeur received from him a very cordial welcome. He informed the king, to his great satisfaction, that the French Government had decided to open commercial intercourse with his country, but on these indispensable conditions: that foreigners should be assured of finding help and protection; that the king should put an end to the quarrels between various chiefs, which, one might say, were always going on and which would ruin their kingdoms; that he would promote industry and agriculture; that the coining of false money should be prohibited under the severest penalties; and lastly, that he would give the French permission to construct on the frontier of his kingdom a fortified post, where they could place themselves and their merchandise, safely guarded from pillage or any hostile attack. Andriamboatsimarofy approved of all these conditions except this last one, which he considered to be dangerous to his own power and to the independence of his people. On this subject numerous conferences were held, which did not effect much; so after six weeks of useless waiting and tedious discussions, Mayeur decided to leave and returned to the east coast.

Here ends M. Grandidier's account of the travels of this worthy explorer, which certainly, as he says, merit being rescued from the oblivion in which they have been buried for so many years. Perhaps this is largely due to the fact that Mayeur's accounts of Madagascar and its people were never printed. It is probable that the political changes at the time of the French Revolution prevented this from being done, and so his name was soon forgotten. The manuscripts containing Mayeur's journals are, however, still available, and may be consulted by any one having a reading ticket at the British Museum; for they are included in a valuable series of documents collected by Sir R. Farquhar, when Governor of Mauritius (1810-1820), and presented by his son, Sir W. M. Farquhar, to the national library. On p. 19 of my *Madagascar Bibliography* (Antananarivo, 1885), under the letter H, will be found this entry: "**Hamilton, W.J.**—Abstract of Manuscripts, Books and Papers respecting Madagascar during the possession of the Mauritius by the French; presented by Sir W. M. Farquhar to the British Museum. *Jour. Roy. Geogr. Soc.* 1850; p. 75." The fourth item of the contents of the above collection is as follows: "(4) A History of Madagascar in 2 vols. by *Chev. de Froberville*. It consists chiefly of the travels, unpublished up to that time, of Mayeur, in the north and west of Madagascar (Apr. 1774), and in the interior (Jan. 1774* and July 1775*); etc. etc."

Probably many other items of interest about Imerina and Antananarivo and the Hova might be gathered from these manuscripts; and perhaps some reader of the ANNUAL may feel drawn, on his next visit to England, to spend a few hours in the Manuscript Room of the British Museum and unearth them from the obscurity in which they have for so long remained.

Translated (in the main) from the French of

ALFRED GRANDIDIER

by JAMES SIBREE (ED.)

* These are probably clerical errors for 1777 and 1785.

FROM FORT DAUPHIN TO FIANARANTSOA :

NOTES OF A JOURNEY IN SOUTHERN MADAGASCAR.

(Concluded from ANNUAL No. XIX.)

AT dusk, on April 3rd, we reached Mahamanina, a town crowning a steep hill and overlooking an extensive panorama. This was our last Hova station before plunging into what our bearers termed the *efitra* or wilderness, and a region full of terrors for them. They used to speak to us with dread of the forest we had to traverse, where the witches dwelt; of the frightful precipices that had to be surmounted at the further end of the wilderness; and of the plains of grass, "tall as two men," where the murderous robbers lie in ambush. The route we were to follow was unmarked on any map, and I believe that no European has taken it before. From Mahamanina we were to strike across the unexplored Tanala country to Angalampona, the nearest Hova military post in Betsilèo, a journey of five days. The Tanala are a virtually independent people and have always successfully defied the Hova. They have never felt the influences of civilization, and no missions have been established among them.* Their country is about 150 miles long from north to south, and 70 miles in breadth; it contains some of the finest scenery in Madagascar. It is possibly the richest district in the island, and a traveller, quoted in Capt. Oliver's book, considers that it "presents a magnificent field for European enterprise in the cultivation of coffee, sugar-cane, vanilla, and even tea."

The Tanala country is at present overrun by bands of robbers, who have no fixed abode; the Governor of Mahamanina therefore insisted upon sending with us an escort of four soldiers armed with sniders. We set out on April 3rd. Our bearers, drunk as usual, had to be collected and driven out of the town by a detachment from the garrison; and we only made a short day's journey to the village of Samadio. But we had no further difficulty with the men; there was no rum to be got in the *efitra*. They were afraid too of the robbers and the ghosts, and in their anxiety to once more reach civilization and dissipation, they cheerfully accomplished long and fatiguing marches.

Our next day's midday halt was in the Tanala valley of Marotsiriry. The huts here are built of bamboo, and not of traveller's-tree, as on the coast. We found the people wild-looking, but well-disposed. The Tanala men, like the Tanosy, wear nothing but a narrow loin-cloth, and are armed with spears, shields, and Tower matchlocks. The women wrap themselves in papyrus mats, and are bedecked with bead necklaces and copper rings. Their coiffure is not elegant in European eyes: their black hair is twisted up into a number of balls—about the size of a billiard ball—which are thickly plastered with fat and white earth.

Here, and in the other villages we passed, the inhabitants appeared to be quite unused to Europeans; at Marotsiriry they had never seen

* This is hardly an accurate statement, unless it is limited to the southern Tanala; in the northern district, at Ambôhimanga, mission work has been going on for many years past.—EDS.

one. We often found it difficult to purchase supplies, as the villagers did not care for money, but wanted beads or cloth, with which, unfortunately, we were not provided. On some occasions we should have gone supperless to bed had not the headmen come to our house with presents of rice and fowls. Among the Tanala we had no experiences of blackmail or extortion.

We were now in what our bearers called 'Robber-land,' and on leaving Marotsiriry after tiffin we crossed a broad valley which has a very evil reputation, and concerning which our men had told us many ghastly tales. The valley was overgrown with high grass, which rose several feet above our heads, and in places there were belts of very dense jungle. The robbers, we were informed, were always lying in ambush in this grass, and had killed a number of travellers. We were disposed to be sceptical, but our men evidently felt they were in the presence of a very real danger; they crept stealthily and in silence through the grass, listening intently for the slightest sound. Suddenly we came upon an old man, carrying an axe and two spears, who stood and watched us curiously as we defiled by him. Then he followed us, and coming up to Mr. Pearse, explained to him that there were many robbers lying in the jungle in front of us, and that he would accompany us; for the robbers knew and respected him, and if they saw him walking in front of us, would abstain from molesting us. We surmised that the old gentleman had been posted as a sentinel by the robbers, and that it was his intention, by going with us, to signal to his friends that we were too formidable a party to be attacked with impunity. We followed him along a very narrow track, which wound up and down steep gullies and through the darkness of thick jungle. I came next to him, ready with my revolver to reward treachery. At last we heard a confused sound of voices coming from the depths of the jungle. "The robbers!" explained the old man, "but they will not touch you now."

Shortly afterwards we passed out of the rank growth on to the open ground, and I halted till all our men had come up. Some of the robbers, with their women, now ventured to creep out of their jungle and stood at the edge of it staring at us. They were brutal-looking savages, of the lowest type I have seen in Madagascar, stunted in growth and resembling the Bushmen of Africa. The old man accompanied us to the village of Bêravina, where we were to pass the night. While on the way, we asked him if it was true that the robbers had killed several travellers. "It is quite true," he replied, "you can smell one of them now." We noticed an unpleasant odour, and then, on turning a corner, he pointed to the cause of it, a dead Hova, lying still unburied in the bed of a stream, the victim of the jungle devils. We asked him in what villages the robbers lived; but he was too cautious to admit that he knew much about them. "They come from a country far away," he replied; they stay here now and then, living in the roadside jungle, waiting for travellers."

We were now travelling in a westerly direction, and the edge of the great central plateau loomed ever higher as we approached it. On April 5th we were among the foot-hills and traversed a very beautiful country. For several miles we followed the bank of a rapid river—broad as the Thames at Richmond—a tributary of the Mâtitanana. It

flowed between high hills and cliffs clothed with tropical forest, torrents of clear water rushing into it from many picturesque defiles. Looking at the valley, we caught frequent glimpses of the lofty peaks of the range of mountains before us. Then we left the river to travel by a rough track up hill and down dale, sometimes clambering across precipitous gullies, whose depths were shaded by bamboos and ferns. The soil appeared to be very fertile, and we saw some very fine sugarcane. At each village we were able to procure bananas, manioc, and sweet lemons, with which to vary our monotonous diet of rice and fowl. Our midday halt was at a village called Ivohitrôva, where we had to submit to a curious local custom. No man bearing a load singly is allowed to pass through the gate of the stockade; so our luggage bearers were obliged to rearrange their burdens and make double loads of them, two men carrying each load. Superstitious rules of this description are very prevalent in Madagascar and are often most vexatious to the traveller, who, for example, may happen to arrive at a village on a day when it is tabooed to all strangers, and so be unable to obtain food or shelter for the night. This night we slept in Mahabo, the largest village I have seen outside Hova jurisdiction; it is a sort of capital of the Tanala tribe. It stands on an isolated hill and commands a very fine view over the mountain and forest region we had yet to traverse. We had been gradually ascending for three days, and had now reached a more temperate climate; in Mahabo we found it agreeably cool at night.

Our next day's march, according to our men, was to be our longest, and they said that we should have to start as soon as we could see the road, in order to reach our destination by nightfall. We accordingly set out at dawn, and as we descended the steep hill on which Mahabo stands, the increasing light revealed a magnificent scene. Mist filled all the valleys, and we seemed to be looking down on a pearly ocean, from which the hundreds of hill-tops rose like an archipelago of islands, some rocky and bare, others richly wooded, and many of them crowned with the stockaded villages of the Tanala; while in the west, the main range soared above the misty sea like a mountainous continent, its buttresses standing out like promontories, and its highest peaks already lit up by the rising sun. It was an arduous march, and the road was so rough that we made no use of our palanquins.

A few hours' walk brought us into real mountain scenery, a land of crags and rushing streams, soft green pasture, and pleasant woods. A fresh highland breeze was blowing, delicious to us after the stifling atmosphere of the lowland jungles. At midday we saw right in front of us, and but a few miles off, the main range—more exactly, the mountainous edge of the high interior plateau of the island—which here presents a remarkable appearance, for the higher land falls towards the eastern foot-hills in a gigantic and seemingly almost perpendicular step or terrace; and along the summit of these heights, and overhanging the edge of the precipices, extends the great forest of Madagascar, which encompasses the highland region in a broad belt nearly 2000 miles in length, and forms that mighty bulwark on which the Hova relied as their most formidable defence against invasion. The innumerable rivers which rise in the depths of the forest country and flow eastward to the

Indian Ocean fall over this great terrace in magnificent cascades. Of these we saw several in the distance, one of which, when better known, will probably rank among the famous waterfalls of the world. A huge volume of water—a branch of the *Mâtitanana*—rushes over a sheer precipice, which appeared to us, as we viewed it from a ridge six miles away, to be quite 600 feet in height, and before reaching the deep valley below is largely dispersed in clouds of spray.

It was late in the afternoon when we reached the foot of the mountain and commenced what our men had for days been talking about as "the great climb." It proved to be a steep ascent, from spur to spur up rocky gullies and slopes of debris; and the sun had set before we reached our destination, Ankitsika, a hamlet perched on a rocky knoll at the summit of the pass, with many peach trees growing round it. Here we passed a very uncomfortable night. As this is a place frequented by travellers, rum is sold, and we unfortunately arrived on the occasion of a drunken wake, some important person having recently died. Throughout the night there was a horrible din of tomtoms, wailing, singing, shrieking, stamping of feet on boards, and insane bursts of laughter. At frequent intervals bands of drink-maddened savages serenaded us, by rushing round and round the hut in which we lay, with discordant yells. Quarrels were frequent. Numbers of rats and cockroaches ran over our bodies all night and made sleep still more impossible. In the middle of the night one of our escort came to warn us that the people were infuriated with us, as the head-man recognized in me a Frenchman who had recently taken him and others to the west coast as carriers, and had disappeared without paying them their wages! He vowed vengeance against me and declared that he would prevent me leaving in the morning. Our men were fortunately afraid of these wild people and did not join in the debauch, so we were quite ready to leave this Pandemonium at dawn. Before starting I sent a message to my accuser to inform him that it was my intention to take him with me to the nearest Hova station, where he could lay his complaint before the governor. This proceeding not being to his taste, he hid away and was not to be found, so we left the place unhindered.

As soon as we were outside the village we plunged into the famous forest, which is narrow at this point and can be traversed in one day. In this district the timber is not felled, so the forest has preserved its virgin aspect. Ancient trees of great height and girth soar above the lesser growth of bamboos, tree-ferns, and flowering bushes; while lianas knit all together in a tangled and impenetrable web, which renders it impossible for the traveller to turn from the path. We advanced in single file up a track which was not only very narrow, but was confined overhead, for we had often to stoop to pass through the tunnels that pierce the rank vegetation, creeping in the dim twilight under the roof of verdure, and sometimes under the trunks of the fallen trees. In these dank depths of foliage, never burnt by the sun's rays, lush mosses cover every rock and tree, and parasitic ferns wind like ivy round the lower branches. The forest is exceedingly well watered, for it is the mother of all the eastern-flowing rivers, and we crossed streams and broad torrents at frequent intervals. I was particularly struck by the complete silence that prevailed here. There appeared to be no animal life and

no birds. It was a region of rank vegetation only, haunted, say the natives, by ghosts who hate mankind.

In the course of this day's march we crossed the watershed, and saw the streams flowing westward instead of eastward, to swell the rivers that wind across the great Sakalava wilderness to the Mozambique Channel. Suddenly we emerged from the dense growth and opened out an extensive view over a country that was entirely unlike anything I had yet seen in Madagascar. We stood on the summit of a steep slope and looked down upon an undulating but almost treeless region, a land of grassy downs and plains, well watered by many streams and rivers. No waste swamps filled the valley bottoms, as in the coast districts, but well-cultivated rice-fields occupied all the level alluvial soil between the hills; and even the hill sides in many places had been carefully cut into terraces, where abundant crops of rice, maize, and manioc were produced by artificial irrigation, the water being brought to them by skilfully constructed little canals which tapped the upland springs. The grass too on the hill tops was not rank and useless, as in the wilderness, but was 'tame,' as they would say in South Africa, having been eaten down by cattle for many years, affording sweet pasture to oxen and sheep. In the Tanosy and Tanala districts the habitations are grouped together for mutual protection into stockaded villages, but here I saw isolated homesteads (*vàla*) scattered all over the country, substantial-looking buildings of red sun-baked bricks, each surrounded by a little grove of bananas and loquat trees, and encircled by a high dense hedge of prickly-pear or other thorny shrubs.

It was indeed a pleasant land to look upon after the wilderness we had left, and I realized that we had at last come upon civilization once more, for the country that lay before us was the highland and inland province of Betsileo, which is completely under Hova control, and whose inhabitants have for many years been instructed by the missionaries of the L.M.S., as well as by the Norwegian Lutherans. We descended into the plain by a winding path and soon found ourselves among the natives. Many of the men wore the graceful white *lamba*, and the women were decently clothed. They saluted us in friendly fashion as they passed, instead of scowling at us, like the barbarians of the south, who would as often as not maintain a sullen silence when Mr. Pearse made a civil enquiry of them. At dusk we reached Antanàmbô, a Hova outpost, where the soldiers who compose the small garrison politely placed their quarters at our disposal for the night.

The next day we traversed a fertile and populous country to the town of Ambôhimandrôso, which, with its churches, schools, and brick houses, looked astonishingly civilized to my unaccustomed eyes. This is a station of the London Missionary Society, and two of their missionaries reside here, who extended to us their wonted hospitality. Mr. Pearse had an attack of fever, so decided to rest here for a few days before proceeding to Fianarantsoa. But I was anxious to push on; so, having procured substitutes for such of my men as were down with fever, I resumed my journey on the following morning, the governor providing me with a small escort, for the Ibàra tribesmen from the west were raiding on the road I was to follow, and a few days before had lifted 500 head of cattle and carried off 300 men and women into captivity. I did

not get far this day, for on reaching the village of Ambálavao, the governor of that place insisted on my staying with him for the night. He explained to me, through a pupil of the Jesuits who spoke French, that it would not be safe for me to proceed till the morning, as a raiding party was not far off. In the evening there was a great blowing of conches and shouting, and I was told that the governor was summoning the inhabitants to assist the soldiery in case of attack.

I reached Fianarantsoa on the following day, and on my way saw evidences of the Bara raid—burnt and still smouldering villages, and frightened peasants crowded together with their cattle on the hill tops. At Fianarantsoa I stayed with the Rev. A. S. Hockett, one of the L.M.S. missionaries stationed there; from him I learned that from letters lately received from the Capital, the British officers who had been in the service of the Native Government had resigned their commissions and left the island. There was therefore no need for me to hurry now, so I rested two days in my host's house to shake off the coast fever which had seized me. The final portion of my journey—from Fianarantsoa to Antananarivo—has been often described by previous writers, so these notes of travel among the wild and little-known tribes of the south-east of Madagascar may here come to a conclusion.

E. F. KNIGHT.



MALAGASY PLACE-NAMES; PART I.

PLACE-NAMES, it is now acknowledged, form one of the most reliable sources of information as to ancient and prehistoric times, and are among the most enduring and unaltering records of the past. In all the older countries of the world the names of the mountains and the rivers, of the fields and the valleys, of the farms and villages and towns, as well as of all other geographical features, reveal the existence and successive occupation of the soil from remote epochs by many different races of mankind. And in the newer countries the names given to places tell in the plainest terms of their discoverers, and often fix the date of their becoming known to the civilized world.

An inspection of a map of Madagascar, at least of one of not very recent date, shows a curious difference between the nomenclature of the coast and that of the interior. In the latter the names are entirely native, for no European power has (until the French occupation of the central provinces in September, 1895) ever succeeded in establishing itself in the country for any lengthened period, but the coast is fringed with a variety of European words—English, French and Portuguese—as well as with Malagasy names. Thus we find “William Pitt” Bay, “Chatham” Island, and Port “Liverpool,” commemorating the leading English statesmen of the time when the first complete survey was made of the coast by Capt. W. F. W. Owen, R.N., whose ships' names are also perpetuated in “Leven”

Port and "Barracouta" Island. The treachery of the native population is remembered in "Murder" and "Grave" Islands, where some of Owen's crews were killed by the people. English Admiralty and other officials' names were given to Port "Croker," Point "Barrow," "Dartmouth" River, Port "Mc Clure," "Dalrymple" Bay, and "Barlow" Island; and British surveys of the western coast have also left their mark in "Barren" Isles, and in "Crab," "Coffin," and "Sandy" Islands, in the Mozambique Channel. And in the northern extremity of Madagascar we find "British" Sound—more properly "Diego Suarez" Bay—with four deep inlets called respectively by the names of "English," "Welsh," "Scotch," and "Irish" Bays.

The earlier French intercourse is marked by the names of Fort Dauphin, Port Choiseul, Foul-Pointe, and Louisbourg; a record of the monarchical times, nearly two centuries ago, when so many disastrous attempts were made by the French to establish themselves on the eastern side of the island.* And going back further, to the discovery of Madagascar by Europeans, the maritime enterprise of the Portuguese three hundred and seventy or eighty years ago is marked indelibly on the map, together with their religious fervour, by the names of various saints which they gave to the chief capes all round its shores—St. Mary, St. Andrew, St. Vincent, and St. Sebastian—† as well as by the Isle of St. Mary, the Bay and River of St. Augustine, the Bay of St. Luce, the Shoal of St. Bonaventure, the town of St. Thomas (now called Tamatave‡), and by the name of San Lorenzo, by which the island was known for long after its discovery. Two or three of their famous captains are also kept in remembrance in "Antongil" (Antonio Gil ¶) Bay, "Diego Suarez" Bay, and "Juan de Nova" Island.

Going back earlier still to the Arab settlements, both on the south-east and north-west coasts of Madagascar, although these have left enduring traces of their presence in the language of the Malagasy, they do not seem, so far at least as our information at present extends, to have affected the place nomenclature of the country. The Arabs have given the names used by many tribes to the days of the week and of the months, the terms connected with superstition, witchcraft, divination, etc., and many words employed in the arts of civilized life—dress, money, bedding, music, etc.—but their influence does not appear to have extended to the names of towns or of geographical features, with one possible exception. This is the name of the chief lake, the Alaotra, in the Antsihanaka province, which, according to the Rev. L. Dahle, is probably the Arabic *Al-lutat*, "the dashing of the waves," the same word which is given to the Arabs from beyond the Mozambique Channel, who

* In certain old French maps Madagascar was called "Ile Dauphin," but this name did not obtain any permanence.

† The most northerly cape of Madagascar, now known as Cape Ambro or Amber, was formerly called Cape Natal, from its being discovered on Christmas Day (*dies Natalis Domini*).

‡ Tamatave is called by the Malagasy "Toamasina," probably a corruption of "San Tomaso." ¶ Mr. A. Tacchi suggests that "Antongil" is rather a corruption of "Santa Angelo," as nothing seems to be certainly known of any "Antonio Gil." Ngontsy, the name of a place on the north-east coast, is thought by Mr. Tacchi to be a corruption of "Saint Gontran," and so would be another word of Portuguese origin. M. Grandidier, however, thinks the word to be simply a corruption of the name of the principal river flowing into the bay, viz. Antàngambà-lana.

are called by the Malagasy, the "Talaotra."*

The object of this paper is, however, to call attention to the *Malagasy* place-names in Madagascar; to show how they illustrate the mental habits of the people and their powers of observation; to point out some few historical facts which are probably preserved in certain names: and to note a number of words of obscure or doubtful meaning which are embodied in many of the names of places, and which are possibly relics of an occupation of the island anterior to the arrival of the present prominent Malayo-Polynesian element in the population. Our knowledge of the various dialects of the Malagasy language is still too fragmentary and imperfect to allow of much being done at present in the direction indicated in this last point; and one chief result aimed at here in noting some of these particulars is to provoke enquiry and research on the subject. Madagascar will prove an exception to almost every other country if a careful analysis of the names of its mountains and rivers, valleys and plains, towns and villages, and other geographical features, does not throw some light upon the earliest occupation of the island, and the successive waves of population which have passed over its surface. There are several reasons for believing that an earlier and less civilized race than the present inhabitants once occupied the interior of Madagascar (the Vazimba), and it is possible that some of the obscurer words embodied in certain place-names are relics of this aboriginal people.

There is, unfortunately, a peculiarity in the habits of the Malagasy, in common with all the Polynesian races, with regard to names, which introduces an element of uncertainty into geographical nomenclature, viz. the practice of tabooing words or particles which enter into the composition of the names of their chiefs. As all personal names have some distinct meaning, and are largely composed of commonly-used nouns, verbs, and adjectives, as well as of the names of animals, plants, etc., it constantly occurs that the names of most familiar objects and actions have to be changed through forming part of the their sovereign's or chief's name. From this cause, writes Mr. Hastie, British Agent at the court of Radama I. (1817-1826), "the names of rivers, places and things have suffered so many changes on the western coast that frequent confusion occurs; for after being prohibited by their chieftains from applying any particular terms to the accustomed signification, the natives will not acknowledge to have ever known them in their former sense" (*Tyerman and Bennet's Voyages*, p. 276, 2nd ed.). There is reason to believe, however, that this cause of change and uncertainty applies much less to the place-names of the central and eastern districts of the country, and that the *taboo* (Malag. *fady*) there more affects the names of objects and actions than those of places.

Before considering the names of places in Madagascar, a word or two may be said about the name of the country itself. There seems much reason to believe that the word "Madagascar" is not a native name, but is one that has been given it by foreigners. There appears to be no Mala-

* M. Alfred Grandidier has, however, pointed out several other names of places on the western coast which he believes are of Arab origin, although he does not give their meaning; these are Kisimany, Kongony, Sada, Mibany, Kivinja, Jangoa, and Boinaomary. I should doubt some of these, which seem Malagasy words in whole or in part. In Dumont D'Urville's *Vocabulaire Madéass-Française*, *Alaotra* is translated "au large."

gasy root in the word, and the combination of the consonants *sc* or *sk* is one not allowed by the genius of the language. The island used to be termed by the people *Isao rihetra isao*, "This whole," in accordance with the idea of many insular nations that their own island is the principal part of the world; and in the time of Radâma I., and subsequently, it was also described as *Ny anivon' ny rîaka*, "The [land] in the midst of the flood." According to some accounts, an old designation of the country was *Nôsin-dâmbo*, "Island of wild-hogs," these animals being the largest wild creatures of the forests. The only attempt at explaining the derivation of the word "Madagascar" which I have seen is that given in one of the earliest books upon the island, a German work published at Altembourg in Meissen in 1609, and entitled *Beschreibung der Mechtigen und Weißerhumbten Insul Madagascar*, by Jerome Megiser; in which it is affirmed that "the African kings of Magadaxo and Adel conquered the coast region of the island, which is to be called nothing else but Magadaxo. This word was afterwards corrupted into Magadascar, and at last became Madagascar, which name it kept until the Portuguese afterwards gave it another name, as has been mentioned before." Whether or not this contains any historical fact, it is now difficult to decide. Besides the names for the island already mentioned, this German work also gives many others, most of them applied by the Arabic geographers, one being "The Island of the Moon;" they write the name either Kamar or Komr, the same word which enters into the name of the "Comoro" group, to the north-west of Madagascar. These islands are called by the Arabs "Komair," or the Lesser Komr. The name, as applied to the whole island, survived until the arrival of the Portuguese, for on one of the oldest maps, the *Charta Marina Portugalensium*, of the first decade of the sixteenth century, the name Komortina occurs for the island, in addition to those of Madagascar and San Lourenço.

Coming now to the place-names in Madagascar, we may first look at those of *Mountains*, the most prominent and awe-inspiring of all natural features, and to which the imagination of simple peoples soon affixes descriptive epithets. The interior provinces of the island (from which regions almost all these illustrations are taken) constitute an extensive elevated mountainous region, occupying rather more than a third of the total area of the country, and raised from 3000 to 5000 feet above the sea. This hilly region is composed of primary rocks, and the loftiest summits are of granite, gneiss, and basalt. It will be seen, however, that one prominent descriptive class of names for mountains in most countries is wanting in these Malagasy names: there are none denoting the *whiteness* given by snow. Although the highest points are only a little under 9000 feet above the sea-level, this is yet, in that part of the tropics, too low for snow to lie; snow is indeed unknown in Madagascar, and so there are no equivalents in its mountain-names for the "Snowdon, Ben Nevis, Mont Blanc, the Snafells, or Sierra Nevada, of Europe, or for the Hæmus, Lebanon, or Himalaya ("Abode of snow") of Asiatic countries.

It will also be noticed that almost all these mountain-names commence with the letters *I* or *A*. The former is merely a particle (it might almost be termed an article) which is prefixed to denote place-names, as well as tribal and personal names. The other letter is part of the preposition and demonstrative adverb *any* (contracted to *an-*,

and changed for euphony to *am-* before certain consonants), 'at,' giving a localizing sense to the word it precedes.* Further, it will be also remarked that the syllables following *Am-* are, in a great number of cases, *bôhi-*, contracted from *vôhitra*, a word now usually taken as meaning a "town," and indeed forming the first part of a vast number of Malagasy town-names. But as there are quite as many mountains as towns having *Ambôhi-* as the first part of their names, it is probable that *vôhitra* originally meant a "hill," especially when it is remembered that the root of this is the same as that from which a number of words, such as *bôhy*, *bôhibôhy*, *bôhitra*, etc., are derived, all of which have the idea of "swelling," "puffing," "convexity," and "protuberance." One of the grandest mountains in Madagascar, situated near the northern extremity of the island, is called *Ambôhitra*, and is said to be more than 6000 feet high. The usual word for mountain, *tëndrombôhitra*, i.e. "point of the town," or "hill" also confirms this; the old towns in the centre of island were always built for security on the tops of hills, so that the names of hill and town seem quite interchangeable.†

As might be supposed, the idea of *height* and *prominence* is one of the most frequently occurring in mountain-names in Madagascar. Thus we find several called *Angavo*, "The lofty," and one of the finest mountains in eastern Imèrina is *Angavokély*, "*Little lofty*," to distinguish it from the *Angavo* which forms a magnificent tower or outwork, so to speak, of the mountain wall on the eastern side of the upper plateau. There is also *Avomasina*, the "Sacred high" (place); and one of the loftiest peaks in the Vavavato district in southern Imèrina is *lâvohaika*, "The-lofty-defying-one," a mountain nearly 7000 feet high. The word *ambôny*, "above," also occurs in several names, as *Ambônîlôha*, "Overhead;" *Ambônîvôhitra*, "Above-the-town" (or hill); as well as *lôha*, head," in *lâvolôha*, "Lofty-headed;" *Lôhavôhitra*, "Head-of-the-hill" (or town), one of the highest mountains in Vônizongo. *Asândratra*, "raised," "exalted," forms part of several names, as *Nasândratany*; as also does *arina*, "set up," "lifted up," in such names as *Ambôhimîarina*. Then there are numerous mountain-names in which the root *ringy*, meaning "loftiness," "conspicuousness," comes in; thus we find *Andringirîngy*, *Mâhakîringy*, and *Andringitra*, a very prominent ridge 14 miles north-west of the Capital, and closely connected with the old idolatry; a cave in its steep southern slopes being a Malagasy Delphi, the former supposed abode of the god *Ranakandrîana*. The same meaning of height and eminence is found in *Milangana* (from the root *lânga*, tall, lofty), a lofty point north of the old capital, *Ambôhimanga*. Much the same idea is implied in in the root *rânga*, "having the ears erect," a word applied to animals, and found in the name *Andrângaranga*. The commanding position of some eight or ten Imèrina hills is implied in their name *Mâhatsîngo*, "Able-to-gaze-from;" *tsingo* being a word usually used for looking at a distant object. From an almost exactly synonymous root, *lâsana*, comes the name of another mountain, *Fitazânana*, "The outlook." The sharply-pointed peaks of some hills again have suggested the idea of a "spur"

* *Ambôhimanga*, "At the blue (or excellent) town;" *Ambôhidava*, "At-the long town;" *Ambôhimanjaka*, "At the king's town;" etc., etc.

† I am confirmed in this opinion by seeing that the word used in the Malay Peninsula, for hill is *bukit*, which is the same word as the Malag. *vôhitra*.

(Mal. *fāntsy*), which is accordingly given to some of them; while others are called Ambôhimarānitra, "Sharp hill;" Anténdro, "At-the-point," Itsiloabo, "Lofty-thorn," and Ivátotsilo, "Thorn-rock." One mountain-name, Madiótandroka, "Clean-horn," reminds one of the Matterhorn and Schreckhorn, etc., of the Alps.

Height of course involves some degree of *mystery* and *dread*, which ideas are accordingly embodied in several mountain-names. Thus we find Ambôhijānahary, "God's-hill," in several districts; the word Zānahary (Creator) being vaguely applied by the Malagasy to many things which they cannot understand; as is also the other word for God, Andriamānitra, as in Andriamānitravato, "God's-rock," and Ambôhitrāndriamānitra, "God's-hill" (or town). Of names of this class are Imanôndrolānitra, "Sky-pointing," and Itslandānitra, "Not-in-the-sky." A mountain in the Tanāla (forest) region is the Malagasy Hades, the caves in it being supposed to be the dwellings of departed spirits, and is called Irātsy (or Irāty), "The-evil-place." The very few Europeans who have ascended the peaks of Ankāratra, the highest mountain mass in the island, have described the great reluctance of the natives to accompany them, and their terror at some supposed malignant influence on these lofty summits (see ANNUAL, No. I., p. 62). Zāvona, mist," enters into the composition of several mountain-names, as Ibèzāvona, "Much-mist," Ifòtsizāvona, "Mist-whitened," and Manèlozāvona "Mist-shaded" (?), and Tsiáfajāvona, "Impassable-by-mist," the name of one of the highest peaks of Ankāratra. *Inaccessibility* is involved in several other names; as Tsiáfabalāla, Tsiáfakalika, and Tsiáfakāfo (another Ankāratra peak), which three names mean respectively, "Impassable by a locust," by a dog, and by fire. Almost exactly the same meaning is given in the names Tsiāzombōrona, Tsiāzonambōa, and Tsiāzompapāngo, which mean, "Unattainable by a bird," by a dog, and by a hawk. The sharp cutting winds on these elevated points give a name to one hill, Sārodrivotra, "Difficult (through) wind;" while the variety of blasts has probably suggested another name, Imārivotra, "Many-winds." Possibly the howling of the wind round the top gives the name of another hill, Ambôhimitrēma, "Bellowing-hill."

Somewhat poetical names occur in Ambôhijānamāsoandro, "Hill-of-the-children-of-the-sun;" in Fōnovāratra, "Thunderbolt-covering;" in Tōmpombôhitra, "Lord-of-the-hills;" in Andrianambo, "King-of-the-heights" (or "Kingly-height"); and Malākialina, "Quickly-night," the name of a hill north of Ambôhimānga, whose height causes a deep gorge to the east of it to be soon in darkness towards sundown.

As height also involves *size*, the word *bê*, "big," is found in many names, as Ambôhibê, and Ivôhibê, "Big-mountain;" Antānambê, "Big-hand;" Māngabê, "Big-blue" (probably referring to the colour of the basalt-rock); Ivātobê, "Big-rock;" Bôngabê, "Big-hill." The first part of the last-named word also enters into several hill-names; it means a clod, a turf, and also a round hill; so we find Bônga, Bôngabê, and Bôngakely, i.e. hills, big and little.*

It has already been noticed that the primary rocks form most of the highest points of Madagascar, and the word *vato* (euphonically changed

* Probably the same idea of rounded convexity comes in Bêvôhoka, "Pregnant" (lit. "Large-wombed").

after *am-* to *bato*), "stone," is therefore a very frequently occurring one in these mountain-names, and in one connection or another forms part of about a fourth of all the names of hills in which natural features are referred to. Thus we find it in its simplest forms of *Ambàto* and *Ivàto*, and then in combination with the words for the colours blue, black, white, red, and speckled, as *Ambàtomànga*, *Ambàtomainty*, *Ambàtofofotsy*, and *Ambàtovàndana*; with those for size—little, big, and immense, as *Ambàtokèly*, *Ambàtobé*, and *Ambàtovaventy*; and with those for height, length, roundness, steepness, bareness (lit. "baldness"), and wooded outline (lit. "hairiness"), as *Ambàtoavo*, *Ambàtolàva*, *Ambàtovòry*, *Ambàtomihàntona*, *Ambàtosòla*,* and *Ambàtovolòina*. Besides these there are Kingstones, Prince's-stones, many Famous-stones, (as well as some Level-topped-stones, Sharply-pointed-stones, and Double-peaked-stones.† Some hills, which terminate in a solitary column of rock, have the same name as that given to the memorial erected stones, so common in Central Madagascar, called *Vàtolàhy* (lit. "Male-stone"); one with a double head is called *Bàka*, that is, V-shaped, a term applied to the horns of cattle; others, with three points, are the "Three-sisters"—*Ambàtotèlomiràhavavy* (a hill of this name is conspicuous near the eastern edge of *Imérina*, and looks from some points like a Titanic cathedral); while others again are the "Three-men" (*Ambàtotèlòlàhy*); and one is called *Ambàtomandrindry*, probably from a root meaning "thickly studded," here of course, with boulder-like rocks. Others, solitarily conspicuous, are called *Ambàtotòkana*, "Separated-stone;" and the idea of a upright column gives another name, *Mahtsy*, "Straight" or "Upright;" and we also find *Antànjombàto*, "Rocky-promontory." A very remarkable rocky region south-west of *Ankàratra* is termed *Vàvavàto*, "Stone-mouth;" another hill is *Ambàtofidirana*, "Entrance-stone," while both in northern *Imérina* and in southern *Bétsilèo* are *Vàravàrambàto*, "Stone-gateway," names given to mountain passes in those provinces. But it would be tedious to particularize all the varied combinations into which *vàto* enters in Malagasy mountain-names, the more so as many are now obscure in meaning.‡

Another word for rock, *hàrana*, is also found in many names for hills. *Ankàrana* is the name of the most northerly province in the island, and is so called on account of its famous rocky fastness (see *ANNUAL* II. p. 27); and this word is probably the root of the word *Ankàratra*, the name, as already mentioned, of the loftiest mountain mass in Madagascar. We also find *Harànambé*, "Big-rock;" *Ankàrankèly*, "Little-rock;" *Ihàrana*; *Ihàranarivo*, "Thousand-rocks;" *Ankàraména*, "Red-rock;" *Ihàranandriana*, "Prince's-rock;" *Ankàramaina* and *Ihàrandàva*, "Dry-rock" and "Long-rock;" and several names include both the words for stone and rock, as *Ambàtoharàna*.

While mountain summits in Central Madagascar are usually of bare rock, here and there their names show that wood, more or less extensive, once covered their heights, and in many names *àla*, forest, comes into combination. Thus we find *Iàlaràda*, "Two-woods;" *Anàlabè*, "Great-wood;" *Ivòhiàlabé*, "Hill-of-much-wood;" *Anàlamanàntona*, "Hanging-

* Also simply as *Antsòla*, "Bald-one."

† *Ambàtomanjàka*, *Ambàtonandriana*, *Ambàtomalàza*, *Ambàtomàrina*, *Ambàtofisaka*, and *Ambàtosàmpana*.

‡ One of the tribal divisions of the Hova Malagasy bears the name of *Mandiavàto*, "Treaders-of-the-Rock."

wood;" Anàlamiràviràvy, "Overhanging-wood;" Anàlamanàra, "Cold-wood;" Anàlamahitsy, "Upright-wood;" Anàlambàno, "Heron's-wood;" also Anàlambàto, and Isòmotra, "Beard," probably a fanciful allusion to woods; and several others, including words of obscure meaning. *Hazo*, tree, also occurs in several hill-names, as Ankàzotòkana, "Solitary-tree," Ankàzobè, "Big-tree," and Ankàzomiròhitra (perhaps *mirohotra*, which would mean a company of trees). The names of separate trees or grasses distinguish other hills, as Ambérobè (*vèro* is a long grass), Inàtobè, "Much-nàto, the name of a tree whose bark yields a red dye; Ambòlobè, "Much-bamboo," Ivoàra, "Fig-tree," and Ambiàty, the name of a tree. *Vàry*, rice, and *fàry*, sugar-cane, also occur in the names of three or four hills; Ambòhibàry is a very lofty mountain in Bètsiléo; and we also find Tàmponkètsa, "Summit-of-rice-ground," and Antsàhafàry, "Sugar-cane-field." The fragrant grasses found in many places have suggested names for several hills, the word *mànitra*, fragrant, forming parts of the following: Isàhamànitra, Ivòhimànitra, and Avomànitra. A beautifully wooded mountain in the Anàtivòlo* district is called Vòhilèna, "Wet-hill" (?), probably from the moisture attracted by its numerous trees.

The generally waterless character of the hills is, however, indicated in several of their names, as Andrànoritra, "Dried-up-water; Fàsina, "Sand;" Ampàsímávo, "Brown-sand; Vòvotàny, "Earth-dust;" while some others, which have lakes and springs as the source of rivers, are called Andrànòfito, "Seven-streams," Imàroràno, "Many-waters," Màsindòny, "Sacred (or salt)-river," Farìhilàva, "Long-lake," and Màm-jaràno, perhaps, "Dun (coloured)-water." (This is also the word for plum-bago.) One hill is called Anívoniràno, "In-the-midst-of-waters."

The pleasant situation and pure air of many hills is recognized in their names; as Ambòhitsàra, "Good-" and Ambòhitsàrabè, "Exceedingly-good-hill," Ambòhitsóa, "Pleasant-hill" (a frequent name), Nòsifàly, "Joyful-island," Nòsisòa, "Pleasant-island," Bémàsoàndro, "Much-sun," and Tòkotànitsàra, "Good-settlement;" while the steep ascents and difficulty of climbing to their tops are shown in the names of others, as Màmakè-traka, "Disheartening," and Màmàreraka, "Exhausting." The deep *hady* or fosses, with which many hills are scored, and were dug as defences for the town on the summit, give, in various combinations, several names; as Ankàdivòry, "Circular-fosse;" Ankàdibè, "Big-fosse;" Ankàdifòtsy, "White-fosse;" Ikàdimànga, "Blue-fosse," etc. So also the word *vàla*, an enclosure, is a part of a few hill-names, as Ambàlahàrana and Ambàlafàsana; although it is more strictly and frequently, as might be supposed, a town-name.

From the large number of extinct volcanic cones in the interior provinces of Madagascar, one might suppose that in the names of some of them at least we should find some reference to fire or heat. I can, however, find only two or three instances where possibly some remembrance of igneous forces is preserved, viz. in Ambàtomay, "Burnt-rock" and Iàmboafò, "Lofty-fire," two mountains in the Tanàla province, and in another named Kitróka, a word which means lava.

A considerable number of mountains are designated after the names of *animals* and *birds*. Most numerous are those called after the guinea-fowl, *akànga*, there being probably at least a dozen named Ambàton-

* I.e. "Amongst the Bamboos."

akánga, "Stone-of-the-guinea-fowl." Then come several called after the cock, Ambôhitrakóholáhy; the large hawk, Ambátombúromahéry; the kestrel, Iktsikítsika; the kite, Maslapapángo, i.e. "Fierce-with-kites;" the dove, Ambátombôromailála; the cardinal-bird, Ifódy; the peacock, Vórombóla; and there is one called "feather", Vólombôrona. (As already mentioned in speaking of names denoting height, there are also numerous hills called "impassable" by birds—hawks, kites, etc.) The largest and most valuable animal of the country, the humped ox, *ômbý*, gives names to a good many hills; in its simplest form, Ambôhitrómbý, "Ox-hill;" Ambôhitrómbaláhy, "Bull-hill;" and in Andráokómby, "Licked-up-by-oxen;" Antándrokómby, "Ox-horn;" Antráfonómby, "Ox-hump;" and in Ambôhimanôto, "Butting-hill." The words for sheep (*ôndry*), goat (*ôsy*), and wild-hog (*lámbo*) are found in several hill-names; as Ambátônôndriláhy, Antsahanôndry, Ambôhitróndry, Ambátônôsy, and Lôhalámbo, "Hog's-head." Even the crocodile (*mamba*) also appears in these mountain-names, as in Mamba, although, as might be supposed, it is more frequently found in river-names; and also the hedgehog (*sôkina*), in Ambôhitsôkina. We also find "Many-rats," Mârovóalâvo; "Many-fleas," Mâroparâsy (a rather frequent and uncomfortably appropriate name for many villages); "Many-ants," Maróvitsika; and two or three "Honey-hills," Ambôhitantely.

A smaller number of mountains have received names which may almost be termed *personal*, and are derived either from some renowned king or chief, or have some obscure reference to people—their numbers, relationships, etc. Thus we find the "mountains" of Ratrimo, Rasômotra, Razáka, and Rafito; the "cattle-fold" (*fâhitra*) of Andriamandrôso; and the "hill" of the renowned chief who founded the Hova monarchy and supremacy, in the unconsonably long name of Bônganândrianimpôinimérina! The name of the supposed aboriginal tribe of the interior is contained in Sôvazimba, and that of the Hovas in Famohflankôva. An oriental exaggeration of numbers comes in in Ambôhitrarivobé, "Hill-of-many-thousands," and in Ambôhipôlôalina, "Hill-of-ten-ten-thousands;" we find also "People's-hill," "Son-of-men's-hill," "Hill-of-the old," "Slave's-hill," Prince's-hill," "King's-hill" (in Manjakabé, "Great-king," simply); and the hills of the "Good-father," the "Grandchild," and of "Sacred-chanting" (Ambôhimirâry). Two or three Imérina hills have a strictly personal name, as Ramânarivo, and Rântoandro.

A very numerous class of mountain-names I have grouped as of *doubtful* signification, meaning thereby not that the words themselves are obscure in meaning, but that the reason for giving such names is doubtful. They comprise verbs, adjectives, and nouns, and while in some cases an examination of the particular hill, or enquiry among the nearest inhabitants, might very likely afford some clue to the origin of the name given, in many cases the reason is probably hopelessly lost. A few examples may be now given; and of *nouns* used as names, we find the following: Anjômba, "Conch-shell;" Ambôhibóla, "Money-hill;" Ampériféry, "Pepper-place;" Bétongôtra, "Many-footed;" Antêmitra, "Matted;" Sômpatra, "Rice-basket;" Vinâny, "a Guess;" Ambôhimpanômpo, "Servants-hill;" Ambilâny, "At-the-pot;" Ambôhimizána, "Money-scales-hill;" Ankâfotra, "At-the-hâfotra" (tree); Laona, "Rice-mortar," etc.

Of *adjectives* employed as hill-names there are only a few, as Mangidy,

"Bitter," Mòra, "Easy," and Manéva, "Beautiful;" but a large number of verbs are used as hill-names; e.g., Ambòhitsimióza, "Not-washing-hill," Mánana; "Having;" Ambóhimanáhy, "Disquieting-hill;" Ambóhimana, "Tribute-paying-hill;" Ambóhimahalála, "Knowing-hill;" Māhasá-rotro, "Making-difficult;" Ambóhimandray, "Receiving-hill;" Ambòhitsilèò, "Unconquered-hill;" Mānadála, "Making-foolish;" Manàlalandò (perhaps), "Throwing-off-drowsiness;" and Māhasóa, "Benefitting." A curious name occurs in Māntsihoaiza, which is, literally, "Say, where to?"

It will be thus seen from these examples from a few groups of Madagascar mountain-names, chiefly taken in the centre of the island, that there is much variety in them; and that some of them give evidence of considerable imaginative power on the part of the early inhabitants of the country. I do not here attempt to speculate on the facts possibly embodied (fossilized, so to speak) in another large group of names whose meanings are obscure, and which may possibly in some cases prove to be archaic words, and may in others preserve obsolete forms of the verbs and other parts of speech. I will give a dozen out of a hundred instances of mountain-names that are obscure in meaning:—Babay, Antaolàndra, Ambòhitratalénina, Maràmpona, Māhakòzana, Kijòny, Kipátso, Mòngy, Ambóhimiangàra, Nànja, Iàsy, Ambóhilòmpy, Ràngo, Mānamingy.

Before concluding this division of the subject, it may be added that almost all travellers in the interior of Madagascar have been impressed with the grandeur of the mountain scenery. Dr. Mullens, in his *Twelve Months in Madagascar*, says "This mass of mountains (the Vāvavàto) is piled up on the grandest scale. Each ridge is lofty and impresses one with its greatness. Who can adequately describe the combination of the whole? Their shapes were wonderfully fair; their combinations and massings were strangely picturesque. No masses of such surpassing grandeur have I seen in any of the countries which I have visited."

And in notes of a journey made in 1877 by the Rev. J. Richardson to the south-west provinces, he says of the Isalo mountains, "they form a most conspicuous land-mark to the west, and are different from all the mountains I have seen in Madagascar. I counted no less than 50 distinct peaks or distinct portions of the range, many of them being conical, like a map of the comparative heights of the mountains of the world." Further on, Mr Richardson says that the illustrations given in the *Art Journal* of 1877 of the grand scenery on the line of the Pacific Railway are strikingly similar to that of the Isalo peaks and passes, both in their wonderful effects of colour and in their magnificent and sometimes grotesque outlines.

To these extracts may be added another from the writer's pamphlet, entitled *South-east Madagascar*, in which the mountains in southern Betsiléo are thus described:—"The grand and varied forms of the mountains all round this plain of Tsiénimparihy filled one with an exultant kind of delight. To the south is a crowd of mountain tops, peak behind peak, with the greatest variety of outline: one has the appearance of a colossal truncated spire; another has a jagged saw-like ridge; another is like a pyramid with successive steps; and another like an enormous dome; but the varieties are endless, and as I passed along, the combinations of these giant masses of bare granite changed every minute. Their summits were never long free from clouds, and the changing effects of

sunlight and cloud shadow could only have been caught by a rapid use of photography. These hills were more like those round Port Louis in Mauritius than any I have seen elsewhere in Madagascar, but were far finer, and more varied and grand than anything I have ever seen either in Madagascar or any other country. The summits of many of the peaks must be at least 3000 feet above the plain. These 'everlasting hills,' these 'strong foundations of the earth,' recalled many of those exultant passages in the Psalms and the Prophets which speak of Him whose 'righteousness is like the great mountains.'"

The *River-names* in Madagascar next claim a little notice, although they are less striking in their descriptive character than we have seen the hill-names to be. A glance at a good map of the island shows that the largest rivers flow to the west, the watershed being comparatively near the eastern coast, so that except the Mangôro, few very large rivers flow into the Indian Ocean; but there are a great number of small streams, many of which have cut deep gorges in the chains of hills, and are broken by numerous cataracts and falls. Scenery of great beauty, and endless combinations of wood and rock and water, are found in these parts of the island. Two words are used for 'river' in Malagasy: *renirano*, which is, literally, "mother of waters;" and *ony*, a word which, it will be seen, is frequently combined with others in forming river-names. (This latter word is Malayan in origin, and is the same as the Malayan *sugni*, a river; *s* being in both languages a very loose noun-prefix; *u* is the Malagasy *o*; and the coast *n* is nasal and equal to *gn*.)

Descriptive epithets of natural features are of course found in a good many river-names, as in Onibè and Onivé, "Big-river," Andrànobè, "Much-water," Lémpona, "Concave" or "Hollow," Ampóntány, "In-the-heart-of-the-land," Ampivalánana, "At-the-descending" (water), and Andrànômavo, "Brown-water." We also find Onimainty and Onifòtsy, "Black-river," and "White-river," Onilàhy, "Male-river," and Imaintinàdro, "Black-by-the-day" (?). The power of some small streams when swelled by sudden and heavy rain is noticed in such names as Kélimahéry, "Little-(but) strong;" Kèlilálina, "Little-(but) deep;" the difficulty of fording them in Fitamalaina, "Unwilling-ford;" the noisy character of some in Andriamamóvoka, "Dust-raising-prince" (probably alluding to the spray or mist caused by the rapids or falls); the broken channels of others in Imànandriana, "Having-cataracts;" while another bears the ominous name of Mātiandrano, i.e. "Drowned." The largest river in Madagascar is the Mania, a word meaning "to go astray," and called in the lower portion of its course Tsíribihina, i.e., "the Unfordable," so it is said, but probably meaning "the Impassable;" of this river it is said that it brings down more fresh water than the Ganges; at its mouth the sea is fresh three miles from land. The chief river of the north-west coast, the Bétsibòka, which takes its rise in the northern part of Imerina, derives its name from the large volume of fresh water it pours into the Bay of Bembatòka; it is *be*, much (water), *tsy bòka*, not brackish. The name of the bay just mentioned is probably a corruption of *fòmby tòka*, i.e. the single *fòmby* or *rofia* palm, which grew formerly on one of its headlands.

The names of *animals* are applied to a few Madagascar rivers, as in Màmba, "Crocodile" (almost every river swarms with these reptiles),

Ombifótsy, "White-ox," Ambórompótsy, "At-the-white-bird" (an egret), Antànandambo, "Wild-hog's-foot" (lit. 'hand'), Sàhalambo, "Wild-hog's-field," and Sàhanamàlona, "Eel's-field." This word *sàha*, 'field,' is found in some other river-names; as Sàhasàrotra, "Difficult-field," Sàhadmbe, "Spacious (?)," or perhaps, "Ox-field," and Isàhanónja, "The-field-(or place) of-waves;" also Sàhafflo, *filo* = 'needle,' or possibly, *filao*, the name of a fish.

Ambàto, "At the stone," is found in several river-names, as well as in those (as already seen) of mountains and towns; in these cases it probably refers to some hill or rock where the stream takes its rise, or near which it flows, or possibly from its rock-impeded channel. Thus we find Ambàtolàmpy, "At-the-rock," Ambàtomiady, "At-the-fighting-stone," Ambàtomainty, "At-the-black-stone," Ambàtotsipàhina, "At-the-kicked-stone," probably with some reference to giant legends. One river is called Ankàzotsipihina, "At-the-ruled-(or straightened) tree;" another is called Fantàra, a name also given to meteoric stones, and another is Varàhina, "Copper."

As with mountains, so also a few rivers have names referring to persons; two or three have the personal prefix Andrian-, as Andriambilàny, and Andriamènakèly, "Prince-of-the-estate." One is curiously called Ikótoràtsy, "Bad-boy;" another, Zànakólona, "Son-of-men," and another, Andranonandriana, "At-the-prince's-stream."

It must be said, however, that the above examples include (excepting the Manla, the Bètsibòka, and the Onilàhy) few of the largest streams of the island, such as the Ikòpa, the Mangóro, the Matsiatra, the Soffia, the Mānanàra, and Mānanjàra* (there are several examples of these two names), the Māhajilo,† the Sisaony, and many others, the meaning of whose names is obscure. We probably need a fuller acquaintance with dialects other than the Hova to understand many of the names applied to rivers. In the name of the Mātitanana, i.e. "Dead-handed," a south-east coast river, a piece of legendary history of a giant having thrown his hand across the stream at an enemy is said to be preserved. But it is probable that the story has been invented to account for the name. In some portions of the east coast of Madagascar the names of tribes and of the rivers flowing through their territory are identical, and it is often difficult to say whether the people took their name from the river, or *vice-versa*. Curious superstitions cling to some of the rivers; e.g., of the Matsiatra in Bètsilèo, Mr. Shaw says, it is "a splendid river, though on account of the superstition of the people deterring them from putting a canoe upon it, it is one of the greatest obstacles in travelling to and from the Capital in the wet season. In one itinerating journey the only way of getting the writer's goods across was by balancing them upon the native water-pitchers, a man swimming on each side propelling the cranky vessel forward."

The *Lake*-names in Madagascar will not detain us long, as they are very few in number for so large an island. The largest one, the Alaotra, in the Antsihanaka province, has already been mentioned as probably embodying one of the few Arabic words in Malagasy place-names. (It will be remembered that the allied word *laut* is largely

* Lit. "Having-a-share." † *Filo* is "sharp-pointed."

used for island='sea-surrounded,' in the Malayan Archipelago ; as Timor Laut, etc.) The next in size is Itasy in Imâmo, whose name probably means "shallow," the word *tsy* being applied chiefly to plates and dishes. (In the Timor language, *tassi* means 'the sea ;' so probably the name of this lake has much the same meaning as that of the Alaotra, from the Arabic ; see p. 402, *ante*.) It is said that this lake is of recent formation, at least tradition goes back to a time when it is said to have been formed by the breaking down of some embankment by a Vazimba chieftain. As, however, a considerable stream, which in the rainy season forms a grand waterfall, always issues from Itasy and forms the river Lilia (a word of unknown meaning, to myself, at least), this seems a little mythical. In a map of the lake made by the late Mr. W. Johnson (see ANNUAL No. I., 1875) every bay and division of it has a separate name applied to it, a proof of the minute distinction by the Malagasy of places by giving appropriate names.* The full name of the lake is Itasihânaka, the latter part of the word being a root signifying to run out, as a liquid, as ink on blotting-paper, for example ; the word is also used as a synonym for others meaning lake, pool, etc., but is not much employed. This word is also found in the name of a northern central tribe, the Sihânaka, probably from the character of the country they inhabit, with extensive marshes, and the lake Alaotra, just mentioned, at its north-east corner. It is worth notice that the word *tsy* is found in several of the Malayan island dialects, and there means 'sea.' A lake in the province of Pahang in the Malay Peninsula is called *Tassek* Bara, evidently the same word as in the Malagasy. A small lake south-west of Ankâratra is called Vinâniôny ; *vinâny* is a word frequently used on the east coast for a river-opening through the bars of sand which partly block up the mouths of most of them, and means "breach," "irruption." On the south-west coast are two lakes called Heôtry (or Hoôtry) and Tsimâ-nampetsôtse, but the meaning of neither of them is clear.

On the eastern coast of Madagascar is a remarkable chain of coast-lakes or lagoons, into which the rivers fall. These have doubtless been formed by the incessant strife between the rivers and the ocean, for there is a constant heavy surf raised by the south-east trade-wind. So nearly continuous are these lagoons that by cutting about 30 miles of canal to connect them, a unbroken water-way of 260 miles in length could be formed along the eastern coast. These lagoons are distinguished by separate names, as Nôsibé, Itángy, Rasôabé, etc.

There are two or three examples of small but profoundly deep lakes formed in the extinct craters of some of the old volcanoes. One of these, Trétriva, is said to be unfathomable, and is the traditional abode of the Fanâny or Fanânim-pîto-lôha, a seven-headed dragon or monster, about which marvellous stories are told ; see ANNUAL XII., pp. 467-472.

JAMES SIBREE. (ED.)

(To be concluded in our next.)

* These are : (1) Tarâzo, Hereditary (?) ; (2) Ampéfy, At the embankment ; (3) Kavânta, possibly, 'Opening,' as this is the point where the river issues from the lake ; (4) Ambâvanandriana, At the prince's mouth, or opening, a strait between broad reaches ; (5) Lohôloka, meaning doubtful ; (6) Anjiva, ditto ; (7) Fitandambo, Wild-hog's ford.

RECENT CONTRIBUTIONS TO MADAGASCAR GEOLOGY.

No. I.—*GEOLOGICAL NOTES OF A TRIP TO ANKARATRA, VAVAVATO, AND ANTISRABE.*

DURING the month of September, 1892, Mr. Lord and I spent a short holiday at Antsirabé, the route followed from Antananarivo thither being the usual one, which runs along the eastern foot of Ankaratra and passes through Ambatolampy. The following are a few rough geological notes of the country passed through.

Leaving Antananarivo (where the rock, in precise geological language, is a hornblende-granitite-gneiss, that is to say, a foliated rock consisting essentially and chiefly of the minerals felspar, quartz, dark mica, and hornblende) we crossed the plain of Betsimitatatra by way of Anòsizáto. This village is built on an outcrop of hornblende-granitite, consisting of the same minerals as the Antananarivo rock, only not foliated. To this succeeds the gneiss again (which indeed is the prevalent rock throughout the country), but it is interspersed here and there with the granitite in such a manner that it is impossible to say where the one begins and the other ends.

Some two or three miles north-east of Ifèhibè (a village at the north-east foot of Ankaratra mountain) the lava commences which occupies so large a portion of the district of Vákinankátratra. Near the north-eastern edge of the lava (on the road to and not far from Ifèhibè) there is a pretty considerable mass of white siliceous sinter, which must have been deposited by a hot spring either at the time when Ankaratra was in a state of volcanic activity, or some time subsequent thereto. We passed the night at this village of Ifehibe, and as soon as it was light next morning we started for the top of Ankaratra. The road leads in a south-westerly direction up a very gradual and easy ascent to the northern summit of the mountain. Reaching this we turned southwards, passed along the western foot of Ambóhitsámpana (one of the numerous peaks of the mountain), left Ambóhitrakòholáhy about two miles to the east, and proceeded to the peaks of Tsiáfakáfo and Tsiáfajávona, the latter being the highest point in the island. With the exception of a few yards, the whole distance from Ifehibe to the top of Tsiáfajavona (about 20 miles?) may be travelled in the palanquin. We slept at a small village of three or four miserable and dirty houses at the western foot of the Tsiáfakáfo peak. It was a very long and hard day's work for the men. The only rock to be met with along the whole of the journey from Ifehibe is olivine-basalt. It is of unvarying texture, black, with numerous small porphyritic crystals of olivine, and has been poured out in enormous quantity by this old volcano of Ankaratra, especially at its northern and north-western ends. The peak of Ambohitrakoholahy consists of micatrachyte, but this is on the eastern side of the top of Ankaratra; and at its northern foot there is an exposure of an interesting form of augite-andesite.

Seen from Antananarivo the mountain of Ankaratra seems to be one

almost uniform mass, but when actually there, it resolves itself into deep ravines, enormous spurs, conspicuous peaks, and isolated or continuous mountain masses. The spurs, which run out like so many fingers in all directions, and to great lengths from the main body of the mountain, do not represent so many distinct lava flows, but have been formed by the numerous streams which have excavated the deep and wide valleys between them.

The amount of lava that has issued from Ankaratra is truly astounding, reaching in places to a depth of 1200 to 1400 feet, and probably occasionally to as much as 2000 feet or more. This sheet of lava of course thins out the nearer one approaches its exterior limits, being there found in isolated patches capping the lower hills. Occasionally the basalt has assumed a columnar form, and on the west of Akaratra, not far from one of the roads leading to the Vavavato mountains, there is a round hill (volcanic neck?) of columnar trachyte. The surface of the lava is everywhere decomposed into soil. This, and the apparent absence of all craters, seems to point to a long period having elapsed since the volcano was in a state of activity, possibly some centuries.

On the third day after leaving Antananarivo we left the village at the foot of Tsiafakafo, and slept at the village of Ikélilalina. About six or eight miles to the south-west of Tsiafakafo we first met with trachyte, which seemed to occur at the base of the hills underlying the basalt, but of this I am not sure. It extends for some ten or twelve miles southwards, but from a hill immediately to the north-east of Ivinany marsh, right up to the mountain of Vavavato, the rock is a fissile nepheline-basalt, which in many places is several hundred feet thick. It is so fissile in some places that it might be easily mistaken for slate.

We only touched the eastern edge of Vavavato. A more striking mass of mountains it is impossible to imagine, rising high in clear and wonderfully serrated and jagged outlines. They consist of several ranges trending in a generally north-west and south-east direction. They are for the most part very rocky, with numerous grassy interspaces, some of the rocks being as large as cottages. The view from some points is strikingly grand. The rock is a reddish hornblende-gneiss, with the strike of the foliation running parallel with the general direction of the mountain range, that is, north-west and south-east, the dip being sometimes nearly vertical, but more frequently inclined south-west at about 30° or 40° . The mountain is traversed by a remarkable series of parallel vertical joints, extending from east to west throughout the whole mass of the mountain and its neighbourhood. It is this which, through weathering, has produced the remarkably serrated appearance of the mountain. On the northern edge of Vavavato there is found graphite granite, which seems to indicate that the mountain mass (or part of it) consists of intrusive granite, which has been slightly foliated by later earth-movements. But this is not much more than a mere supposition. The rock which forms the great bulk of the mountain, and extends eastwards of it for a considerable distance, is, as before stated, reddish hornblende-gneiss, with not specially well-marked foliation. It might be almost called a granite-gneiss; some might even call it a granite. The foliation is, however, usually sufficiently present to warrant the rock being called gneiss. The chief minerals of the rock are glassy quartz

and felspar, though the latter predominates somewhat in quantity. The felspar is of various kinds: orthoclase, microcline, and plagioclase. It is red in colour, and this it is which gives the reddish tinge to the rock. The hornblende (a green variety) exists in much less quantity than either the quartz or the felspar. Mica is quite absent, or possibly locally present in very small amount. On the other hand, the rock contains a considerable number of grains or well-formed crystals of sphene. Patches of white quartz may be seen lying about in many different places, being the outcrops of segregation veins, or large nests of the mineral. Here and there (at least on the south-eastern portion of the range) a conical hill of fissile nepheline-basalt may be seen rising out of the rugged mass of rocks, but from my scanty examination of these I am strongly inclined to the view that these are not separate volcanic hills, but are rather hills left by denudation of the nepheline-basalt which, in horizontal layers, covers so great an extent of territory hereaway. If the latter is the case, a good part of Vavavato must once have been flooded by lava which issued from the southern end of the Ankaratra mass of mountain.

From the south-east end of Vavavato we turned towards Antsirabè, meeting with several extinct volcanoes on the way, the crater of one of which, surrounded by a high though not precipitous rim, was about level with the ground and filled with water. The lava which had been poured out from most, if not all, of the volcanoes of the Bétafo and Antsirabe valleys is olivine-basalt. The whole plain of Antsirabe has been filled with the outpourings of this lava.

About ten or twelve miles north of Antsirabe a white trachyte is pretty common, though the nepheline-basalt seems to be here also the prevailing rock. In fact, from two or three miles south of the village of Anjàmana (15 or 16 miles north of Antsirabe), as far north as the village of Andriambilany, with the exception of a very large outcrop of quartz just south of the River Iánabòrona, and a not infrequent rise to the surface of the underlying gneiss, the whole country is covered by this sometimes fissile, sonorous, phonolite basalt, which in some places is hundreds of feet thick. In fact, while the outflow of lava from the north, north-east, and north-west of Ankaratra has been apparently entirely olivine-basalt, that from the south, south-west, south-east, and east has been chiefly nepheline-basalt, with here and there trachyte. The only andesite that I am aware of is that immediately at the north foot of Ambohitrakoholahy, at the top of the mountain. There may not improbably have been a linear series of volcanic vents running in a northerly and southerly direction; this is more likely than that Ankaratra is the product of a single volcanic orifice.

R. BARON. (ED.)



NO. II.—LIMESTONE AND DOLOMITE ON THE EAST COAST.

(With a few Geological Notes as to the Eastern Slope of the Island.)

THE rocks found on the east coast of Madagascar, in those places where they are not covered up by the sea-sand, consist mostly of dolerite (=coarse-grained basalt) and gneiss. I do not remember ever to have seen any mention of truly sedimentary rocks as occurring in this part

of the island. The only occurrence of such rock I was hitherto aware of was an argillaceous schist to the north of Antongil Bay, on the road to Antalàha, several miles from the sea, and which I met with two or three years ago. In travelling recently from Tamatave to Māhanòro, however, I discovered both limestone and dolomite, a fact of some interest. The limestone occurs at a small village close to the sea named Antsàramihànana, some twelve or fourteen miles north of Vatomàndry, and extends a few miles both north and south of this place, though it is only visible *on the road*, at the base of the low hill on which this village is built. It lies at no great height above the sea-line. It is a greyish, somewhat shelly rock, but of what age it is at present impossible to say. The dolomite, which is of a pepper-gray colour, occurs immediately under the fort at Mahanoro. It is fossiliferous, but the material gathered is insufficient to show to what geological series it belongs.

The southern road to the Capital from Mahanoro strikes across the numerous low, grass-covered sand-dunes in a north-westerly direction. A few miles from the sea the ground rather suddenly rises about a couple of yards on to a level sandy area covered with *anjavidy** bushes. Proceeding a little way, another rise and another sandy level occur, followed, if I remember rightly, by a third sandy level somewhat higher still. Now these have all the appearance of old sea-terraces, and if they extend for some distance north and south, they undoubtedly are such. If they are old sea-terraces, the fact is important, as showing that this part of the island has risen within comparatively recent times. It would be interesting to find out how far these level terraces extend north and south. Further evidence of this I have since found to the east of Vatomandry, which I may have occasion to refer to at some future time.

Another fact of importance in regard to the east side of the island, and one which at least tends to confirm the supposition of recent elevation, is the numerous dykes of lava (dolerite) which occur in the gneiss (the most prevalent rock); indeed the whole country (and this applies to the east generally, not locally) from the coast to 50 or 60 miles inland is invaded by an intricate system of such dykes, which generally run in a northerly and southerly direction. In some places, more especially in the northern half, the lava appears to have flowed out from these fissures towards the sea. Besides the abundant dolerite lava, I also met with spherulitic felsite, granophyre, gabbro, and augite-syenite (garnetiferous) at various points from about 6 to 12 miles north-west of Mahanoro.

R. BARON. (ED.)



No. III.—A NEW OTOLITH FROM MADAGASCAR.

“THERE is still another form of *Arius* otolith to which I should like to call attention. Among the fossils brought from Madagascar by the Rev. R. Baron, and noticed in his paper read before the Geological Society (Mar. 6, 1889), were some small otoliths (fig. 7) which he had collected in the village of Ankoàla, where they occurred in some numbers scattered over the surface of the ground. These otoliths bear

* A species of heath, *Philippia floribunda*, Bth.

such a close resemblance to some of those from the Eocene beds of Barton, that they not unnaturally led to the supposition that they also were of Eocene age; but both these forms are referable to the living genus *Arius*, which is a widely-distributed tropical form, and it seems very probable, therefore, that the Ankoala specimens may prove to be of much more recent origin, and the peculiar condition under which they were found seems to point to their belonging to a living species."

* * * * *

"Should the otolith from Ankoala prove to belong to an undescribed species, I would suggest that it be named after the gentleman who brought it to this country: *Arius baroni*."

E. T. NEWTON, F.G.S., F.Z.S.
Proc. Zool. Soc., Apr. 2, 1889.



NO. IV.—NOTES ON SOME ROCK-SECTIONS FROM MADAGASCAR IN THE POSSESSION OF REV. R. BARON.

By W. W. WATTS, F.G.S., and E. T. NEWTON, F.R.S.; *Geological Formations determined by R. B. NEWTON, F.G.S.*

No. 467.—Finely oolitic. Made up of angular fragments of quartz and felspar cemented by carbonate of lime, many of which are surrounded by a concentric and radiated layer, in some thick, in others thin. Some of these granules show an irregular spongy, more or less radiated, structure and but little of the concentric arrangement. These granules may have had an organic origin. *Locality*, east side of mountain-range between the Rivers Loquez and Rôdo ($42^{\circ} 41' \times 12^{\circ} 48'$). *Formation*, Jurassic (?).

No. 472.—Granular, with "fortification" crystals round the calcite-filled cavities. These seem to be the terminations of calcite or dolomite crystals grown round the irregular edges of the borders of the cavities. *Loc.* Ambohimarina town, south of the Bay of Diego-Suarez. *Form.* Upper Cretaceous.

No. 473.—Crystalline, with possibly Echinoderm spines and foraminifera in a fragmental state. *Loc.* Ambohimarina hill (about half-way up the hill). *Form.* Upper Cretaceous.

No. 480.—Oolitic structure, showing concentric and radiate marking of the rounded granules very beautifully. Most of the granules have a centre of fine granular matter. When cut very thin the $\frac{1}{4}$ inch objective shows only the concentric structure, the radial lines disappearing, and the whole mass is very finely granular. The granules seem sometimes to be crossed by the concentric lines. This differs from slide 467, and is most probably due to inorganic concretion. *Loc.* Antankarana province ($49^{\circ} 21' \times 12^{\circ} 57'$). *Form.* Jurassic (?).

No. 511.—Contains indistinct fragments of Echinoderm spines and shells of mollusca, as well as irregularly concentric bodies, about which it may be said that they contain irregular fragments scattered through their mass and interfering with the concentric lines. *Loc.* Nearly the same as No. 467. *Form.* Jurassic (?).

No. 516.—Oolitic structure resembling No. 480, but the granular nucleus is mostly very large, and the concentric covering very thin. Fragments of shells appear to be mixed with these, apparently inorganic oolitic granules, and some large spherules seem to show *Girvanella* structure. In one instance an Echinoderm spine is seen, showing a very pretty section in the middle of a granule. *Loc.* Nearly the same as No. 480. *Form.* Jurassic (?).

No. 519.—Similar to No. 480. In this many of the granules show a bright external layer, with crystals standing out from the surface. *Loc.* Same as No. 461. *Form.* Jurassic (?).

No. 522.—Similar to No. 516 and, like it, has large spherules showing possibly *Girvanella* structure. *Loc.* 4 or 5 miles west of Ankaramy village, north-west coast ($48^{\circ} 12' \times 14^{\circ} 13'$). *Form.* Jurassic (?).

NO. V.—NOTES ON THE STRUCTURE OF SOME LIMESTONES FROM
MADAGASCAR; BY R. BULLEN NEWTON, F.G.S.

Certain limestone specimens collected by Mr. Baron have been sectioned and examined, though the structures offer no very reliable evidence as to their exact geological age. One of the most interesting organisms detected is that of *Girvanella*, a fossil originally found in the Ordovician rocks of Ayrshire, a brief history of which may be of service in pointing out its general characters and its variable distribution in time and space.

This curious genus was first diagnosed by Messrs. Nicholson and Etheridge, Jun.,* as ÷ “microscopic tubuli, with arenaceous or calcareous (?) walls, flexuous or contorted, circular in section, forming loosely compacted masses. The tubes are apparently simple cylinders, without perforations in their sides, and destitute of internal partitions or other structures of a similar kind, although regarded at the time of description as possessing Pliezopodal affinities.”

The true nature and consequent systematic position of this genus remains a debatable point, notwithstanding that its late history appears to be in favour of its relationship to the calcareous algæ.

Similar structures have been observed in the Ordovician (Chazy Limestone) of North America by Prof. H. M. Seeley⁽¹⁾ and called *Strephochetus*; in the Cambrian of Sardinia by Dr. Bornemann,⁽²⁾ who recognized it as an alga, under the name of *Siphonema*; Mr. Etheridge, Jun.⁽³⁾ reports *Girvanella* from the Cambrian (Ardrossan Slates) of South Australia, and notes its resemblance to *Siphonema incrustans* of Bornemann; Dr. Hinde⁽⁴⁾ has referred to the occurrence of this genus in the Ordovician strata of Quebec; Dr. Rothpletz⁽⁵⁾ has created the new generic name of *Sphærocodium* for an alga, which appears to be synonymous not only with *Girvanella* but with *Siphonema*, and which he discovered in the Alpine Trias; whilst Mr. Wethered,⁽⁶⁾ to whom we are largely indebted for much of our knowledge on this subject, has proved the presence of *Girvanella* in the Wenlock, Devonian, Carboniferous, and Jurassic limestones of Britain. Quite recently also Mr. Seward⁽⁷⁾ has collated the whole of the evidence respecting this curious fossil in an article on “Algæ as Rock-building Organisms,” where, without committing himself to any definite statement, he no doubt favours the view that *Girvanella* possesses algal affinities.

Nos. 55 and 59.—These specimens consist of a compact light-coloured limestone composed of small granules varying in size and shape, exhibiting the concentric and radiate characters of an ordinary oolite rock. The central nuclei of the granules have mostly disappeared, and their places are filled in with calcite. *Loc.* Hill-range between Rivers Loquez and Rodo, north-east coast. [Geol. Dep., British Museum.†] *Form.* Jurassic(?).

No. 60.—This is a similarly constructed rock to Nos. 55 and 59, but containing rather larger granules of very nearly one uniform size throughout (see section). The nuclei sometimes consist of indistinct foraminiferal structures, and *Textularia* occurs. *Loc.* Hill-range between Rivers Loquez and Rodo, north-east

* Nicholson, H.A. & R. Etheridge, Jun., “A Monograph of the Silurian Fossils of the Girvan District in Ayrshire,” 1880; p. 23.

(1) *American Journ. Sci. Arts*, 1885; vol. 30, p. 355.

(2) *Nova Acta, Kst. Leop. C.rol Deutsch. Ak. Natur.* 1886; vol. 51, No. 1; pl. 2, figs 1-4, p. 17.

(3) *Trans. Roy. Soc. South Australia*, 1890; vol. 13, p. 1; pl. 2, fig. 1, p. 19.

(4) *Quart. Journ. Geol. Soc.* 1890; vol. 46, p. 282.

(5) *Zeitsch. Deutsch. Geol. Ges.* 1891; vol. 43, pts. 15 & 16, p. 206.

(6) *Geological Magazine*, 1889; pl. 6, figs. 8-11, pp. 196-200. *Quart. Journal Geol. Soc.* 1890; vol. 46, pl. 11, pp. 270-281. *Ibid.* 1892; vol. 48, pl. 9, fig. 3, p. 378. *Ibid.* 1893; vol. 49, pl. 6, pp. 236-248.

(7) *Science Progress*, 1894; vol. 2, No. 7; p. 10.

† This note applies also to all the following sections hereafter described,

coast. *Form.* Jurassic (?).

No. 62.—Section showing ordinary oolite structure and some few organisms, Foraminifera, etc., which are not very distinct, cut from the matrix. Contains a valve of a Brachiopod allied to *Rhynchonella plicatella*, J. de C. Sby. *Horizon*, Oolite (Lower). *Loc.* Hill-range between Rivers Loquez and Rodo, north-east coast. *Form.* Jurassic (?).

No. 61.—Consists of a sandy-coloured matrix containing prominent spherulitic masses of a white colour, which appear to be of organic origin. Mr. Wethered thinks that these structures may be related to *Solenopora*. *Form.* Jurassic (?). *Loc.* Hill-range between Rivers Loquez and Rodo, north-east coast.

Nos. 56, 57, 58.—A fawn-coloured limestone exhibiting large spherules, which appear to show obscure traces of *Girvanella* structure. The nucleated centres consist of fragmentary organisms, such as corals, etc.; one shows a section of an elongate shell like *Nerinea* (see slide 57). *Form.* Jurassic (?). *Loc.* Hill-range between Rivers Loquez and Rodo, north-east coast.

No. 53.—This is a light-coloured rock showing ordinary oolitic structure, and of somewhat similar construction to that observed in Nos. 55, 59, and 60. *Cristellaria* is present as the nucleus of one of the granules (see section 53). *Form.* Jurassic (?). *Loc.* North-west end of central mountain-range, 5 or 6 miles south-east of Anivorano.

Nos. 65, 66.—This rock shows ordinary oolite granules situated at intervals from each other, their nucleated centres consisting of *Textularia lituola* (?), also section of a bivalve shell, Echinodermal and polyzoan structures, and Mr. Wethered also identifies *Girvanella* (in No. 66 section). *Form.* Jurassic (?). *Loc.* about 12 miles south-east of Andranosamonta.

No. 64.—This is a black compact limestone containing variously shaped granules of small size, the following organisms forming their nucleated centres: *Margulinia*, *Nummulites*, *Planorbolina* bivalve shell, and polyzoan structures. Rather large spherules occur at intervals, exhibiting the tubules of *Girvanella* which, according to Mr. Wethered, resembles his species *G. pisolitica* from British Jurassic rocks. *Form.* Jurassic (?). *Loc.* Antankarana Province.

No. 67.—This is a black crystalline rock somewhat similar in structure to No. 64, but less compact. The spherules are of large size, one seen in this section (No. 67) measuring 10 mm. in diameter and composed of *Girvanella*. Nos. 516 and 522 show similar spherules, possibly composed of *Girvanella*. *Form.* Jurassic (?). *Loc.* West of Ankaramy, north-west coast.

The following sections of limestones made by the Rev. R. Baron were sent without the rocks from which they were taken.

No. 517.—This is very similar in structure to No. 61, and was obtained from nearly the same locality. *Form.* Jurassic (?).

No. 518.—Contains rather large spherules with obscure *Girvanella* structures, their nucleated centres showing organic bodies. This resembles No. 57 in most of its details, and was obtained from much the same locality. *Form.* Jurassic (?).

No. 520.—A similarly constructed rock to that seen in slide No. 66. *Form.* Jurassic (?). *Loc.* about $\frac{1}{2}$ of the way from River Mévarano to Andranosamonta village, N.W. Madagascar ($48^{\circ} 6' \times 14^{\circ} 33'$).

No. 521.—Similar to 518 and 57. *Loc.* about 12 miles north of Andranosamonta village, ($48^{\circ} 7' \times 13^{\circ} 45'$). *Form.* Jurassic (?).

No. 530 & 531.—These show various-shaped fragmentary organisms agglutinated by calcite, with no appearance of oolite granules. Polyzoan, foraminiferal, and crinoidal remains are seen. *Form.* Jurassic. *Loc.* 3 miles north of Iraony village.

No. 647.—This is a light-coloured rock mainly composed of regularly formed oolite granules, the nucleated centres of which frequently exhibit organic structures. *Form.* Jurassic (?). *Loc.* West of Janjina village, S.W. Central Madagascar ($45^{\circ} 45' \times 20^{\circ} 30'$).

No. 649.—A limestone consisting of a compact mass of *Globigerinae* [see also No. 68]. *Horizon*, Upper Cretaceous. *Loc.* Ambohimarina village (lower down this same hill where Mr. Baron collected his specimens of *Lampadaster*).



THE 'MOHARA,'

OR WAR-CHARM OF IMERINA.*

IN a very interesting paper on "The Ancient Idolatry of the Hova," written by an intelligent Malagasy and published in the ANNUAL of 1885, it is stated that the introduction of idols into Imérina was due to the desire of King Andrianampônimérina to find something by which he could instil courage into his Hova soldiers. In his encounters with the Sakalava, he discovered that their bravery was largely due to their great faith in charms, and he was keen enough to see that in order to overcome the Sakalava, something more than powder and shot was required. To accomplish this it was necessary to resort to subterfuge. (For fuller particulars the reader is referred to Mr. H. E. Clark's translation of the above article, ANNUAL, 1885, p. 80.) The trick had its desired effect, for "when the soldiers went to fight, they all came to the king and said: 'Give us a gun-charm, sir, for we are going to fight.' Then he gave them small pieces of wood or other small things; he also warned them as to what they were to abstain from.... Thus they had confidence and were not afraid any more, so that when they saw the enemy they poured down upon them like fierce lions, and did not fear death." If a soldier possessing one of these pieces of wood were wounded or killed, it was said that he had done something 'tabooed' (*fady*) by the charm, but if he were one of the victorious party, the charm would be anointed with native castor-oil, or honey, and considered to be sacred (i.e. 'having power,' and thus to be feared).

To what did the latter part of the following sentence refer: "He gave them small pieces of wood and other small things"? Was *mandràva-sàrotra* (literally, 'The Destroyer of that which is Difficult') originally used for its reputed medicinal properties as it is now used by the native medicine-man? The practice, in the far-away country places of Imerina of stringing together and wearing around the neck and wrists *ômbeldhivôla* (a small silver figure of the humped bull); *sénasèna* (a medicinal plant); and the *ôdy tsy léon-dôza* ('charm not overcome by calamity'); all of which were, to the native mind, *mahèry* (powerful), seems to indicate that they were not used for warding off diseases only. Although the word *mohàra* was adopted by the Hova from the Sakalava, it is not improbable that it was introduced by the Arabs.† A native evangelist, who lived for several years among the Sakalava, says that they obtained the *mohàra* from the Taimôro, who made periodical visits to them for the purpose of selling, often at a great price, the various charms. It is strange to note in this connection that, during last March, whilst the south-east of

* It may be more correct to say: War-charm of the Malagasy.

† Mr. Dahle thinks it is derived from the Arabic *mehera*, medical skill, and says it is certainly not originally a Malagasy word.

‡ The natives had three distinct classes of sacred objects:--First, there were the national idols, which were kept in sacred places. Secondly, the *sampfy*, i.e. 'the suspended' (across the shoulders). If a person had built a house, or was about to start upon a long journey and desired to take with him the protection supposed to be afforded by the national god to which he owed allegiance, he obtained from the keeper of the god its small representative, which was carried suspended from the shoulder, hence the name *sampfy*. Thirdly, the *ody*, which seem to have been confined to medicinal uses.

Imerina was being incited to revolt, some ten men's loads of *mohara* were reported to have been brought up from Mâtitanana, a district on the south-east coast. It was used, in the first instance, as a case ('house' is the native idiom) for the reception of the different kinds of *ody†* (native medicinal charms), but after a time, possibly when the Hova began to make them, the word was applied to the charm as made up of the case and the charms inserted therein. Therefore, until the Hova were able to purchase the real gun-charm from the Sakalava, it is very probable that the *mandrava-sarotra* and the other various small things worn around the neck and wrists did service for them.

Unfortunately, the *mohara* have been very much to the front since the beginning of 1895, and consequently, it has been possible to get them. Early in 1896 one was found lying in a field of manioc at Fënoarivo, a village about eight miles west of Antanânarivo. A Malagasy heathen soldier, ordered to the front, had paid five dollars for it, having been informed by the vendor that the guns and even the shells of the French could not harm him if he possessed one. But one of the so-called 'harmless' shells killed him, notwithstanding the charm, whereupon his relatives discarded it. One of my evangelists, seeing it among the manioc, picked it up and brought it to me.

These *mohara* vary in size and appearance. The outside, or case, is taken from the sharp end of an ox-horn. The usual length is from 4 to 6 inches, but one has been seen which was 16 in. in length. About a third of the horn, at the sharp end, is cut flat on the right and left sides, but both on the front and on the back are cut two surfaces forming an angle. Others, however, are quite round. For the remaining two-thirds of the horn, about an eighth of an inch is cut away all round the outside, which is then partly covered with small black and white beads in patterns, thus giving to the outside rather a pretty appearance. In others, nothing is cut away, and two-thirds of the surface are simply covered with coloured beads. But of different patterns there seems to be no end. The occupants of this unique case are, however, far from pretty. They generally consist of two, three, or more sticks, one of which is often easily removable. In some, a small piece of iron is inserted, called '*vin'aina*' ('iron of life'), the idea being that such a piece of iron both protects and strengthens the possessor. The mixture into which these sticks are inserted varies with the charms, as each maker affirms that his is a far superior protection from injury. In some, honey and ashes are said to be mixed together; in others, native castor-oil and ashes are combined. Then, by way of further variety, a serpent's head, or a chameleon's head, is said to be crushed up and mixed with one of, or all of, the three ingredients. It is also stated that scrapings from what are regarded as the most powerful charms are mixed together with honey and castor-oil. Crocodile's teeth, covered with coloured beads, and filled with the mixtures already mentioned, are said to have been formerly used. As the teeth of the crocodile have been, apparently from the earliest times, an ornament of the Malagasy, their transition into a charm was a simple matter, especially when combined with honey, castor-oil, etc.

When the case of the *mohara* has been completed, and its contents inserted, it is carefully placed on one side until sought for by an intending purchaser, for, although thus completed, it has not yet become a

charm. A service of consecration must be held in the presence of the buyer, who is naturally anxious to see that he has got a real charm, for unless this service be held, the charm is supposed to be absolutely powerless. The service is divided into two distinct parts, called by the natives, "*ny Fdhamasinana*," i.e. 'the Invocation,' by the maker, and "*ny Fankatoavana*," i.e. 'the Pledge of Allegiance,' by the purchaser. As the service is practically the same for all the charms and idols, and is so very characteristic of the Malagasy, no apology is needed for giving an account of what takes place. It is necessary to state that it is very difficult to get full information, as the heathen who still believe in them would refuse to disclose their secrets, and the Christian Malagasy are both ashamed and afraid to give a full account, lest it should be thought that they are still idol-worshippers. The following is, as far as I have been able to ascertain, a true account of the process of consecration as practised in most parts of Imerina.

The Invocation. The *mohara* is first well anointed with honey, or castor-oil, or both, then a small fire is made, upon which the gum of the *ramy* tree is burnt as incense. Over this incense the charm is held, being slowly revolved round and round until it is supposed to be saturated with the incense. When this has taken place, the charm-maker starts with the invocation, thus :—

"*Masina, masina, masina hianao!*
tamin' Andriamanitra; tamin'
Andriananahary; tamin' Anak-
andriana; tamin' ny Vazimba-be
masina; tamin' ny hasin' ny la-
nitra sy ny tany; tamin' ny haba-
kabaky ny lanitra sy ny tany.
Masina, masina, masina hianao!
Avia manatrika, avia manoloana,
ja avy amin' izany hianao."

"Sacred, sacred, thou art sacred !
thou comest from God ; thou comest
from the Creator ; thou comest from
the Anakandriana ; thou comest
from the sacred Vazimba ;† thou
comest from the sacred power of the
heavens and the earth ; thou comest
from the firmament spread over the
heavens and the earth. Sacred,
sacred, thou art sacred ! Come, and
behold us, come and be present
before us, for thou comest forth from
(all) that."

On the completion of the invocation, the charm-maker fills his mouth with water, which he then blows over the intending purchaser. In the water thus used, according to some accounts, the charm had been previously immersed, but according to other accounts, clean water was taken from a white horn. It may be remarked in passing that the blow-

* The word 'sacred' does not carry with it all that the English word implies. The natives probably only referred, in the first instance, to that which was powerful, although afterwards the same thing became an object of fear and reverence because of its power.

† The Anakandriana were beings which frequented the caves at Ambôhitrâza and Ambohi-mânambôla, from which, when appealed to for guidance, they gave forth their messages. If they appeared in public, they always adopted the guise of flying beings, dressed as male and female—Malagasy fairies. They were supposed to have been sent to encourage the people to pray, and are said to have made the national gods, and to have given the charms. They also dictated the right course of action, and were able to cause persons to be possessed of spirits. But notwithstanding their ethereal nature, they appear to have had a due appreciation of the value of silver.

‡ The Vazimba were the original inhabitants of the interior, and, although driven out by the Hova, their graves have become places of fear and reverence to the descendants of those who drove them out.

ing of water in this way was an old form of blessing.* It was customary for this form of blessing to be observed both before and after the utterance of the following formula :—

"*Tsofiko rano hianao, mba ho mpitahiry ity andriamanitra ity, ho mpimasy hianao; hahaleo, hahalasa, ho eken' Andriana, ho ekem-bahoaka.*"

"I consecrate you with water in order that you may be a keeper of this god and a charm-worker; may you overcome, may you not be worsted in a conflict, may you be acknowledged by the Sovereign and by the people."

The Pledge of Allegiance. The first part of the service ends with the above formula. The second part begins by the charm-maker enumerating to the purchaser the various things tabooed by the charm, and by warning him of the dangers arising from any laxity in the strict fulfilment of all the instructions. The supposed efficacy of the charm consists in the strict observance of these prohibitions. Having been informed of the things which are to be strictly tabooed by him, the purchaser takes the following pledge, by which the service is terminated, as the *mohara* is thereby supposed to have become an effective charm :—

"*Ekeko izany, ekeko ho andriamanitra hianao, ho mpiaro ahy, ho mpitahiry ahy, ho mpiaraikitra ahy, hiaro amin' ny loza ary hiaro amin' ny antambo.*"

"I agree to that, I acknowledge thee to be my god, to be my protector, my preserver, my instructor in everything, to protect me from danger and from calamity."

When a person only desires to be inoculated, he does not pass through both parts of the above service. It is only necessary for him to promise to abstain from that which should be tabooed.

If the natives who are still heathens expect to be engaged in any kind of fighting, they are inoculated from the *mohara*. The process is far from pleasant. A piece of broken bottle is generally used, with which the face, arms, legs, in fact, the whole body is cut. When the blood comes, the removable stick is taken from the castor-oil, etc. and rubbed over each of the cuts. The charm is thereby supposed to mix with the blood, and a spot, invulnerable to shot and shell, sword and spear, is immediately created.

But the question naturally arises: Do the natives really believe in these charms? Undoubtedly the heathen part of the population does; for, if a man be killed or wounded, it is an easy thing for the *mohara* vendor to say that the owner had done something tabooed by the charm. If any of these tabooed things are done, intentionally or not, the charm not only loses all its efficacy as a protection against injury, but it actually becomes a positive source of danger to the possessor thereof. It is said to "*mahakiso fara azy.*" This expression is used to describe a man and his family who have been reduced to almost extreme destitution. Although believed in by the natives as a charm against all weapons, the *mohara* is primarily a gun-charm. Mr. T. Lord, of the L.M.S., saw one in which part of the lock of a gun was doing service for one of the sticks to which reference has been made. On another

* The word *tso-drano*, lit. 'blowing water,' is still used for 'blessing,' and is indeed the word always employed to denote the 'benediction' concluding Divine service.

occasion, Mr. Lord saw in Vònizòngo a *mohara* tied across the mouth of a robber who had been decapitated. Of this robber it is stated that, when he was led out to be shot, he informed the officer in command that it was no use to attempt to shoot him, as his charm was a sure protection from death by such means. "Don't," said he to the officer, "waste the Queen's powder, for not even a cannon would 'do for me.' If you must kill me, you had better use your spears." In the south and south-east of Imerina the charms are implicitly trusted by the majority of the natives, although some have been thrown away, and one was publicly burnt. It is a fact that before Rainibètsimisàraka, the great robber-chief of south Imerina, attacked and unfortunately killed three Frenchmen at Manàrintsòà, a village about thirty miles south of Antananarivo, every man of his band took care either to possess, or to be inoculated from a *mohara*. After the murder, and during the operations of the troops in that district, this robber-chief is reported to have gained from 400 to 500 dollars by the sale of these charms. And recently, during the month of April, nearly every man in the vicinity of the river Onivè is reported to have passed through the process of inoculation. In addition to that, the bands of rebels to the north and north-east of Imerina, which destroyed so many churches and villages in May and June, are said to have undergone the same operation. It is asserted by some intelligent natives that the majority of the rebels would not have been so daring as they have been, had they not placed such implicit trust in the *mohara*.

This is sufficient to show the power this charm has over the ignorant, when deceived by the native quack. But justice appears, sometimes from unexpected quarters, to avenge the deceived, as the following fact will illustrate. About three hours south-east of Antananarivo, there is a large village which, during April last, was on the point of revolting. A man from Imàmo, hearing of this, at once went to the village and offered to inoculate the people. Some of them readily assented and paid from two to eight shillings each, according to their means. When all had passed through the ordeal, it suddenly occurred to some of them that they should test its efficacy. They therefore decided to shoot at the *mohara* vendor, in order to see if he were really impervious to shot. It is needless to say that the results were far from satisfactory, especially to the man from Imamo. The bullet "found its billet," and the would-be rebels immediately became peaceful citizens.

W. J. EDMONDS.



NOTES ON SOME MADAGASCAR SPIDERS

AND THEIR PROTECTIVE RESEMBLANCES, ETC.

ONE of the pleasantest walks near the L.M.S. Sanatorium is that from the top of the Ambátovòry rock, through the wood, to the south-east side of the hill. Here one might imagine one's self to be rambling through the main forest, fifteen miles away to the east, for the trees are here of good size, and the undergrowth is dense and luxuriant.

As we push through the bushes we break through many spiders' webs, and are struck by the extraordinary shape of some of those whose snares we unwittingly destroy by our passing along. Here is one, small and reddish in colour, but much broader than it is long, each side projecting into a long sharp spike,—indeed it is spiky in several directions, and is utterly unlike any other spider we know of. This is, I believe, a species of *Carostris* (*C. stygiana*?), and belongs to a genus of which several species have names denoting their demoniacal shape and colouring, e.g. *avernalis*, *stygiana*, etc.

As we stop to observe his geometric web, and his bizarre shape, we see on the tree to which several of his main 'guys' are fixed a very different spider's house and a very different spider from our angular friend just mentioned. This creature is a much larger species than the other, with jet-black legs and satiny dark-grey abdomen as large as a good-sized nut. He apparently hunts his prey, for he has no net, but hides himself in an inverted cup-shaped house of strong web. As I tap the top of this retreat he shams dead and tumbles down into the grass, from which he will presently ascend as soon as the enemy is clear off the ground.

Close by this hunting spider's home we see the large web of a third species, quite different from the other two. At first sight this appears to be the same insect as the large *Nephila*, which is so plentiful in Imèrina, in orchards and outside houses. A closer inspection, however, shows that it is a different species from that common large spider, for this one has a long filbert-shaped abdomen, striped with brown lines, very different from the golden and silvery markings of the more abundant species. It appears to be strictly a forest spider and seems rather rare.

Speaking of this *Nephila* (*madagascariensis*), it may be noticed that it is extremely abundant between trees and houses and, in fact, in any open place where there are facilities for stretching the main cords of its huge geometrical web. In the upper part of the branches of the mango trees and the rose-apple trees it may be seen by scores, as well as spanning the deep fosses which surround house compounds and villages all over the central provinces, and from which habit this spider has obtained its native name of *mampilahady* or 'fosse-crosser.' Spaces quite thirty feet wide have been observed spanned by its lines. One species of this creature is eaten by the Malagasy!—so at least says Dr. Vinson, being fried with oil or fat. It is very handsomely marked, and its out-stretched legs cover a circle of four or five inches or more in diameter. From its size it is called by the Malagasy *hala-bè*, i.e. 'big

spider.' The female is by far the largest, being five times the size of the male. The larger cords or main-stays of its web are of strong yellow silk, strong enough to catch small birds, such as the *fody* (a weaver-bird) and the kingfisher, which have both been found entangled in the web. Besides its large net, this spider also constructs a cone-shaped private apartment, to which she retreats when there is any serious danger threatening her, and which she uses apparently as a dining room, and also as a larder, as her prey, enclosed in wrappings of silk, may be seen suspended in and around her private residence. It has been seriously proposed to cultivate these spiders for the purpose of obtaining silk from their threads, but it is doubtful whether this could be done profitably. A single female *hala-be*, however, at the breeding season, gave Père Camboué some 3000 metres of a fine silken thread, during a period of about twenty-seven days. The thread was examined with a view of creating a new industry. Specimens tested at a temperature of 17° C. showed an elongation of $12\frac{1}{2}$ per cent. under a weight of 3.27 gr. Small textures woven of these threads are actually used by the Malagasy for various purposes.

I have noticed that the angles and outer spaces of the great web of the *hala-be* are frequently filled up by the minute geometric webs of smaller species. These lesser fry appear to be tolerated, if not encouraged, by their giant neighbour, as they probably catch what would be insignificant to her, and very likely clear her web of what she rejects; and so they all live together in harmony, in a small colony.

Looking about in the undergrowth for wild flowers and wild fruit, and happening to rub against the stem of one of the bushes, a small rough roundish ball falls off on to the ground; this appears exactly like a bit of brown wrinkled bark, but on watching for a minute or two, it develops four pair of legs, and runs nimbly away under cover, revealing itself as a spider, with a marvellous protective resemblance to its surroundings. Unless the creature actually moves, it is impossible to detect it, it is so exactly like a piece of brown bark, or rather, like a knobby bit of the bark.

Protective resemblance in quite a different style appears in a small spider, perfectly white in colour—thorax, legs and abdomen—which scuttles out of the corolla of certain white flowers, when these are examined or shaken. This also, unless it moves, is all but invisible; and there can be no doubt that it is thus enabled to catch the many small flies which are attracted by the honey and fragrance of the flowers. A larger and green spider, a handsome species, with a long oval abdomen striped with red lines, probably also a hunter, thanks to its close resemblance to green leaves and the pale reddish veining seen on many leaves, by which it is thus protected from observation until it can pounce on its prey. This spider, by the way, as well as some other species, is caught by some of the Solitary Wasps, which are so plentiful here, and is stored up, both in holes dug in the ground, as well as in little clay cells, as food for the newly-hatched grubs. The spider is stung so as to be numbed or insensible, but not killed, and the egg is laid in its body. The young wasp therefore finds itself surrounded by food when it emerges from the egg. This spider is called *hala-ronono* (lit. 'milk-spider') by the Malagasy.

As we notice these curious disguises in spiders, as well as in numbers of other living creatures, we are reminded of the old nursery tales and fables of the gift of invisibility supposed to be conferred by certain plants, or by certain charms or ceremonies. With these spiders, as well as with many other creatures, some lower, and others much higher, than them in organization, this power of becoming at will unseen, even under the closest observation, is no fable, but a veritable fact.

There is a curious habit I have observed in several species of Malagasy spiders which is apparently also used for protection. If they are disturbed, or their web is shaken, they immediately throw themselves into a state of violent vibration, so that the eye cannot follow them; and this rapid motion is continued for two or three minutes, until the supposed danger has passed away. It would seem as if this must be done to confuse a possible enemy intending to attack them.

When on the open downs I have once or twice had brought to me by my bearers a specimen of the dreaded spider called *ménavody*, held at a very respectful distance on a long stick. This creature has a body of shining black, like a small marble, but at its posterior is a small red spot, from which marking its native name has been given. It is greatly feared by the natives, for its bite is said to be often fatal. This dangerous character of such a small creature is less remarkable when we learn that it is closely allied to the malignant *Latrodectus* of Elba and Corsica, whose bite is also believed to be fatal. One species, or variety, is described by Dr. Vinson as having, in addition to the red spot already mentioned, nine little white dots arranged in three rows. I have not, however, noticed these in the specimens brought to me. Flacourt says that those bitten fall into a swoon and become cold as ice. The people use as remedies the infusion of certain plants, and exposing the patient to a strong fire. They also cut out the part affected and cauterize the wound. This spider has been called *Latrodectus menavody*. I have heard that with those who have been bitten by this spider, the pain comes on in paroxysms, causing them to scream out with pain at intervals of about a minute or two.

Another poisonous Madagascar spider is one called by the natives *fôka*; this rather common in gardens, and is extremely like a little brown crab, with a lozenge-shaped abdomen; it is covered with tubercles, and its legs are roughened, like those of a crustacean. Its bite is followed by swelling, which begins in the wounded part and spreads through the whole body. This dangerous spider, whose bite is also said to be often mortal, was named by Dr. Vinson *Phrynarachne foka*. There is another spider, apparently a species of *Mygale*, called by the people *tàrabiby*, found 50 or 60 miles west of the Capital, whose bite is also said to be dangerous, if not actually fatal. It appears to be a trap-door species.

There is a considerable variety in the webs of Malagasy spiders. Here is one, which may be seen by hundreds, filling up the space between the sharp-pointed leaves of the aloes. At first sight it appears only a tangled mass of web, but on closer examination we see that the ground-work is a geometrical web in the centre, but as it is stretched horizontally, and not vertically, it is cup-shaped. But from it, above and below, stretches a labyrinth of lines, like the crossing and recrossing of the lianas in a tropical forest. In the centre of this maze of lines the

owner of the structure lies in wait, a small spider, handsomely marked with black and white. Not far off a grey silken bag is hung, which contains the eggs, from which a swarm of little spiders will eventually proceed, not bigger than small ants.

Quite another kind of web is made by a small brown spider, which seems to weave them only in the cold season. These webs, five or six inches in diameter, may be seen by hundreds on the grass, or on the bare ground, in the months of June, July, and August. They look like the finest gauze, and only become visible in the early morning when the dew lies on them, and they glitter in the sunshine as if studded with jewels. In the centre of the web is a funnel-shaped hole leading downwards to a retreat, where the owner of the structure may be found by careful search. These gauzy webs can only be seen by minute examination after the dew has dried off from them.

Besides the *Mygale* already mentioned, another species of trap-door spider is also said to be found in Imerina, but I have not seen a specimen myself. It is called *ambdabè* (lit. 'big dog'), and is said to leave its door open.

A word or two may be added about a very common house spider which is abundant in Imerina. This is a rather large species, light-brown in colour, but its peculiarity is that it is extremely thin and flat—a case almost of extension without thickness, as it is hardly thicker than a piece of stout paper; and so it is enabled to wait for its prey hidden in narrow and almost imperceptible cracks. It is emphatically a hunting spider and makes apparently no nest or web, and it is amusing to see the adroit way in which it will cautiously approach the edge of a crack in a board and sweep off an unwary fly.

One more curious spider may be noticed here; this has a very small body, hardly larger than a big pin's head, but it has extraordinarily long thread-like legs, covering a very wide area when compared with its minute body.

There must be still a large number of these Arachnidæ yet unknown to science, for they are very numerous in species in some localities. I remember spending an afternoon, many years ago, on a hill a few miles south of the Capital, together with two or three friends, hunting spiders. We caught at least thirty different species among the bushes on the hill-top and slopes. Doubtless some of these are described and figured in one of the volumes of M. Grandidier's great work on Madagascar, still in progress. But there are probably a much larger number of these creatures still awaiting the careful observations of any one who will note their interesting habits and homes, and their very varied appearance and structure.

JAMES SIBREE. (ED.)



TRAVELS AND ADVENTURES AMONG SOME OF
THE TRIBES IN MADAGASCAR.

TRAVELLERS, especially in a partly civilised land, often meet with strange experiences. During several years spent in Madagascar I have made various journeys among the Hóva, Sákáláva, Sihánaka, and other tribes, and in this paper recall a few of my adventures. I trust the following incidents may help to promote an interest in the people of Madagascar among the numerous readers of the ANNUAL.

My first impressions of the natives of this country are still vivid ; these happened to be the Hova custom-house officers who boarded the vessel in which I arrived at Tamatave. While much interested, it was almost impossible to refrain from laughing at their singular appearance in regard to dress. If they could only have shown some little consciousness of their peculiarity, as it naturally struck a stranger, it would have been some relief to our risible faculties, but of course no change was visible in the features of those worthy officers, as, clothed in flowing white *lambas* and very large straw hats, without any boots, they ascended the vessel and advanced in a truly dignified manner to their usual duties with our captain.

A Perilous Trip on Lake Alaotra.—From the town of Anoróro in Antsihánaka, I started one morning at 3 o'clock to cross Lake Alaotra, which in that part is between three and four miles wide. I had previously noticed some of the natives looking and speaking somewhat ominously at the prospect of our trip: "In such small and shaky canoes," and, "There are so many alligators," and, "The long rank weeds of the lake are so luxuriant, that in case of an upset, there would be but little chance of his escape." Such were some of the native remarks I overheard ; but having recently arrived in the province, and trusting to the experienced lakemen of Alaotra, I took little notice of the warnings and entered my canoe for the journey. We first paddled very slowly along a creek leading from Anororo to the lake, our party filling four or five canoes, which were remarkably small and frail. These canoes are simply the trunk of a tree hollowed out, without any seats, and have no keel ; the one in which they had placed me was the newest, but alas ! the smallest, and only two inches out of the water. As we left the creek and entered upon the beautiful broad lake, all seemed to be fine and prosperous. Yet the men were in a hurry and evidently anxious to advance as fast as possible. This seemed rather strange, but ere long the wind rose and blew the waves upon our frail craft. As the breeze increased, the men in our boat became really anxious and shouted to their companions in the other canoes to come nearer to us. One old heathen Sihanaka now called out : "The foreigner should pray to his God, for the storm is upon us ;" and of that I was fully aware, as one exclaimed : "The waves are coming right over our canoes !" Another shouted : "Look ! here's an alligator quite close to us !" while a more sensible Sihanaka replied : "You need not tell us that, for we are frightened enough already ; but that was not a crocodile, it was only an eel ;"—which, by

the way, are of remarkable size in the lake. "Let us cheer up, lads," added the man, "and we'll brave the storm." And thus we struggled on, hoping against hope to reach the Andréba shore. The Sihanaka worked away at their paddles most bravely to save us from the alligators, although about the middle of the lake it was very doubtful whether we could possibly weather the storm in such frail canoes. After more suspense, and when almost giving up hope, it was found we were gradually approaching smoother water, and Andreba appeared in sight. It was with an intense feeling of relief we reached the shore, where all joined me in thanksgiving to God for our safe arrival through the storm.

A Dangerous Bridge.—During the rainy season (from November to March) we are sometimes unable to proceed on our journeys owing to a swollen river without a bridge of any description, and with no canoes. I remember waiting at a river in Vónizóngo for two hours until the water was somewhat fordable again, and after all, was nearly drowned in crossing. Meantime, the school examination for which we were bound had to be delayed, and various conjectures were duly made by the scholars as to whether the examiners would come that day.

It is sometimes found, however, that all danger is by no means overcome, even where a bridge has been provided for the traveller. During a journey in west Antsihanaka I had to cross a genuine native bridge—high above the river, and consisting of a single plank, without a rail. It was decidedly rickety, and so narrow that crossing had to be made in single file. Just as I reached the middle of that remarkable bridge, the man who was leading me across by the hand suddenly shrieked out: "*Matàhotra àho!*" ("I am frightened") and letting go my hand, he tremblingly crouched at my feet, utterly refusing to advance. It was an exciting moment, but persuasion, and even threats, were useless; and shouting to the men on the river bank I urged one of them to come and help. But there was the terrified man still kneeling before me; and the difficulty was to pass by him without capsizing one or both of us into the river far below. As no one dared come to help, I managed to step very cautiously over the man, and at last gained the bank. There were, I well knew, by the colour of the water, plenty of crocodiles in the muddy river, and being breakfast-time, they may possibly have proved hungry; at any rate the men declared that as the cause of Rainizánaka's sudden fright. "Yes," he replied in a hoarse voice, "I really fancied the foreigner and I were both rolling over the plank into the river." I especially noticed the man's look of horror, as if to suggest: "And then! O what a crunching of foreigner's bones!"

An Awkward Position in the Forest.—When travelling on the European Continent, one can easily take with him an authorised (if not infallible) guide-book. In Madagascar, however, one has to travel sometimes through country very little known, and with far less reliable information than can be obtained from an ordinary guide-book.

Returning to England on furlough, I had unwillingly to take the Tanàla route for Mananjàra, instead of that to Tamatave. Being in a hurry to save the steamer expected at Mananjara, I determined on one occasion, after mid-day halt, to push forward as far as Ivòhitrambo, a

Tanala village on a high hill in the middle of the forest. The distance not being correctly noted, and being unprepared for a night journey, we had of course no lanterns. The forest was entered rather late in the afternoon, and we went along hopefully, looking for Ivohitrambo after travelling three or four hours. But the sun had set, and there was no moon to lighten the way, and we were in forest darkness; while, to add to the discomfort, rain began to pour down upon us for some time. And soon were heard on every hand the sounds of the swelling streams rushing down the various gorges. Of course the bearers of the palanquins called out for light. What was to be done? there was no lantern, and the village no one knew how far away. Fortunately, I had some Bryant and May's wax vestas with me, and also one or two monthly numbers of *Good Words*, with one letter; and they helped to save us from spending that Saturday night in the Tanala forest. A couple of pages from *Good Words* were twisted into a torch and with difficulty lighted under the umbrella, one of the front bearers carrying the light. A second torch was then prepared for the bearers of the second palanquin, and by the time that was ready, another was called for by my own men. "Give us another light!" was the demand, and I had my hands full in preparing what was possible from my scanty store. If the paper will only last until the village be reached—that was naturally my one thought; and as the strange process of preparing the lights was repeated, the second number of *Good Words* was gradually consumed, and now the single letter remained. It was also lighted, and, strange to say, just at that very crisis the men called out: "There's a light!" and we saw plainly deliverance was near. It was a Tanala native carrying a more substantial torch than we had been using for some time past, and by the aid of this welcome light, or glimmer, from the large piece of smouldering wood, we safely reached the summit of Ivohitrambo, very glad to secure rest, even in a Tanala house, after anticipating a wet night in the forest.

Native Houses: an Unwelcome Visitor.—In most parts of Madagascar the houses, excepting those of the richer people, are very poor specimens of human dwellings. In Antsihanaka they are mostly built of the frail *zozdro* (papyrus), with a framework of poles, and thatched with coarse grass. In the one room is kept the matting (in rolls) suspended by a cord from the roof, a precaution against the numerous rats. There are also the cooking utensils, and food in the shape of rice in the husk, and two or three ox-horns and bottles used for drinking rum. There is the fire-place and the wood fire, but no chimney, and the smoke escapes, as far as possible, by the one door, or a shutter, if open. Besides the fowls, ducks, geese, and turkeys, there are also the countless mosquitoes, rats, and mice, etc. I have managed, notwithstanding, to obtain a fair night's rest in a Sihanaka house, always obtaining first a change of lodging for the fowls and turkeys. In the winter season (from May to August) we are not much troubled by mosquitoes, and as for the other pests, they may be often outwitted by the wary traveller.

On one occasion, however, I was seriously outwitted, owing to a mistake. When about to retire for the night to my portable bed-stretcher, my native host confidently assured me that every goose, turkey, and fowl, with the sheep, had been carefully removed from the room to separate quarters, and without any more thought of such crea-

tures, I was soon fast asleep—until about 3 a.m., a cold foggy morning, when I was all at once awakened by the startling sound of a sturdy cock crowing most vigorously just above my pillow. I at once realised that a mistake had been made, and my first impulse was to pitch the noisy creature out at the window, but being very sleepy, and the morning being very cold, I endured the annoyance, the remainder of my sleep of course being broken at frequent intervals.

Sakalava Brigands.—In travelling among the Sakalava tribe, to the west of Imàmo and Vonìzongò, one is sure to notice the timidity of the people on the arrival of strangers, and especially if a foreigner be among the arrivals. Arriving one evening towards sunset at Imanòlonimàmana, a Sakalava village near the banks of the river Bétisibòka (about a day and a half's journey from Antòngodrahója), I found myself among a noted band of native brigands. Considerable excitement was at once manifested by the flight of all the women and children, taking with them what chattels they could carry. It certainly looked ominous, and I noticed my bearers were very timid. But we were at the village, and to show the "white feather" just then might have proved dangerous. So I went forward to the place where the chief of the brigands, Ihamavatra, awaited our arrival, with spear in hand, surrounded by his followers, certainly a very forbidding-looking band, well armed with guns (ornamented with brass-headed nails) and spears. Many of the men were away, and were said to have gone "*màka haréna*"—i.e. to "obtain property," or, in plain English, to *steal*. I at once endeavoured to hide any signs of fear by shaking hands with the chief, as if he had been an old friend, and assured him our visit was entirely out of friendship. The old man looked surprised and said: "How can you be my friend, when we meet here for the first time?" This logical query I met by the reply: "See! here is a nice warm woollen shirt I have brought for you all the way from England." This unlooked-for evidence of friendship seemed to please the old warrior, although he was timid in showing too much gratification before his followers. But there was already a change in the chief's treatment, as he agreed to give up his hut for me, and also sent me rice and fowls.

On Sunday morning the chief and his lieutenant came to visit me, the former dressed in a tall red hat, and long red shirt, with short dark blue trousers; and the opportunity was taken for a long talk about the one God, as to whose true nature they then probably heard for the first time. This interview was followed by a meeting in the chief's house, which a few of the women and children ventured to attend.

After a few plain words explaining the *fiavandhana* ("praying"), I exhibited some large views illustrating the Life of our Lord, which were received with great excitement. I noticed that the illustration of our Saviour on the cross between the two robbers especially amused the Sakalava men, one of whom exclaimed that he considered crucifixion a decidedly clever mode of execution.

A Dangerous Custom.—The following incident may serve to illustrate the words of the Psalmist: "The dark places of the earth are full of the habitations of violence." At the Sakalava town of Manéva, west of Vonìzongò, I was engaged one evening with the local catechist, and remarking the very quiet condition of the neighbourhood, learned the cause

from my native friend. It seems that a number of the Sakalava, after drinking largely of rum, had gone out to the gate of the town for their customary evening engagement of fighting. These open-air fights are often commenced as a mere pastime, but gradually become extremely fierce. The wives and children urge on the men to continue fighting, as the idea of showing cowardice seems to them worse than the death of husband or father. The death of one of the combatants is a frequent result of these engagements. When with horror I remonstrated with them for such a deadly custom, the Sakalava seemed rather amused, saying it was one of their *fomba* (customs), and evidently regarded the explanation as quite unanswerable.

Sihanaka Heathen : a Fearful Night.—Many instances might be given to show that in Madagascar, as in so many other lands, the evils arising from intemperance are fearful.

On arriving at the town of Ivòhitraivo, to the north of Lake Alaotra, I found that the chief's mother had just died. When nearing the town we could see fixed on the ridge of the chief's house a startling effigy of the deceased lady, clothed in long white flowing garments, with a large white umbrella spread over the head. Below, and fixed on poles to the eaves of the house, were several dark-red silk *lamba* (shawls) to be used as a shroud, being also the native substitute for a coffin. The *lamba*, with the various garments and the umbrella, were blown about by the morning breeze, presenting, with the effigy, a weird and almost unearthly sight. Several native tomtoms were already in full play, while the quantity of Sihanaka rum being carried in large water-pots on men's shoulders plainly told of the approaching drunken revelry, which I was, unfortunately, obliged to witness. During service in the Ivohitraivo church I met with an unusually sad sight: it was that of a Sihanaka man whose name had been given me as one of those responsible for the school teacher's salary. Calling upon this man to explain some matter connected with his duties, I received no response, and looking toward the spot where he was half reclining, discovered the man to be in a hopeless and shameful state of intoxication—it was only mid-day. The wretched creature was at my request led out of the church, amid the open and general laughter of the assembly, who appeared to regard the matter as a good joke. At night-time the whole town gradually became one scene of heathen revelry, which lasted until early dawn. What with the wailing of the women for the deceased, the ceaseless beating of the numerous tomtoms, and the boisterous shouts of the Sihanaka maddened by the rum, the place seemed more like some corner of the lower regions than an abode of human beings. The scene was quite new to me, and it was with astonishment and horror I anxiously looked for the dawn to break upon Ivohitraivo.

"He is still only a Fool!"—The following incident would be rather ludicrous if not showing too plainly what power the rum exerts over the Sihanaka.

Calling at the village of Ambòhidròhitra one day for shelter from a sudden storm, we were most graciously received by a Sihanaka, who was decidedly "the worse" for rum. Wishing to be sociable, however, I said to my host: "Well, my friend, and how many horns of rum can

you drink before becoming *màmo* ? "(drunk); the Sihanaka use the horns of oxen instead of glasses, for drinking. In a most friendly manner the man replied : "As to that question, yes, I understand ; well, I can drink three horns' full at least" (about $1\frac{1}{2}$ quart). "How much water would you mix with it ?" "Water ! Why we never put water into the rum we drink ; that would make it *matsàtso*" (insipid). Thereupon, turning to a little girl about six years old, the man said : "This is my daughter, a scholar in your mission school at Ambàndrika." "And does she also drink rum ?" "Of course, why not ?" He then told me that the baby, a year old, who was also present, was a son of his. "And does he also drink rum ?" "Oh dear, no !" was the reply, "He is still only a fool !" "Then will he drink it when he becomes wise ?" I asked. "Of course he will," was the cool response. "We all drink rum when we come to understand what is good."

"*My Wife's Fault* !"—When advocating the total abstinence pledge I have met with some curious cases, one of which may be mentioned here. Our senior preacher (a Sihana-kova' at the town of Ambòhipèno in the Antsihanaka province, came forward to sign the pledge ; and on asking if he had been accustomed to drink the *toaka* (rum), he at once replied in the negative. Before receiving my friend as a member of the society, I enquired whether he had any special interest in the spirit trade ? The man was evidently surprised, and after some hesitation told me that he supplied one of the local distilleries with sugar-cane for making the rum ; he knavishly added : "That is my wife's fault." While mentally calling him a coward, I said : "Then go home and try to persuade your wife to give up all interest in this wretched traffic, and bring her with you to meet me at our next meeting at Ampàrafàravòla." Two days later the man with his wife came to the meeting, and publicly renounced all interest in the spirit trade ; as far as I know they are still total abstainers.

"*They never tell the Truth* !"—From my earliest acquaintance with the Malagasy I have been struck with the little importance they attach to equivocation ; even a lie many appear to regard as a mere venial offence, unless found out. And this, notwithstanding several of the native proverbs, one of which asserts : "Better meet with a witch than with a liar."

While talking one day to my two Sihanaka workmen, I mentioned that some more wood must be ordered for making fresh seats in our market preaching-room. "Yes," replied one of the Sihanaka, "sure and I will *order* the wood, but the question is whether it will be brought at the time promised. The wood-cutters tell lies ; they say : 'O yes, we'll be sure and bring the wood at such a time,' but do not come." "Is that their custom ? Then you must seek a wood-cutter who tells the truth, and will bring the wood according to his promise." Thereupon the second Sihanaka man present could not refrain from laughter, exclaiming : "Who can find a man who does not tell lies ? They never tell the truth in these parts !" The men went away greatly amused at my imagining they could find a trustworthy man who would keep his word ; and I returned home musing upon the condition of the Sihanaka when still untouched by the eternal truth.

OHABOLANA,

OR

WIT AND WISDOM OF THE HOVA OF MADAGASCAR, PART III.

(Continued from ANNUAL XIX.)

V. —Hatred, Enmity, Disunion, and Strife.*

291.—*Ny fahatelo be ho tsy mampanana.*

An enemy helps not to fortune.

The word *fahatelo* (lit. a third), like *fahavalo* (lit. an eighth), was one of the unlucky numbers used in the form of divination called *sikidy*. It seems, however, to be a somewhat milder term than the latter, which signifies an out-and-out enemy, who not only will not help to fortune, but will certainly stand in the way of its approach.

292.—*Mpandrava efa, toa voalavo.*

A destroyer of finished work, like a rat.

293.—*Aza manetry montotra.*

Don't cast down in anger.

294.—*Aza manao rano manindao namana.*

Don't be like a river and sweep your friends downwards.

295.—*Lolompon-kovalahy, tsy miseho tsy ratsy tany.*

The malice of a Hova; it doesn't show itself till troublous times, when there is an opportunity of taking vengeance on its object. A sad but true confession of a national characteristic. Compare Nos. 1422—1425.

296.—*Be famaritra ny maso, ka mitahiry raki-dratsy ny fo.*

The eye takes in much, and the heart treasures up evil.

There are several variations of this, which is generally complemented by

297.—*Aza manao kitapo hamelana ny lolompo, na hadivory asiana ny fitaka.*

Don't make a bag to leave malice in, or a ditch in which to put deceit.

298.—*Toa tatamo (or ravin-koririka) am-parihin-dRasahala isika : ka raha faly, miara-manatrika, tezitra, miara-mihodina.*

We are like the leaves of the water-lily in Mr. Similar's pond: when pleased, we face each other, when angry, we turn about again.

299.—*Tsy ny vako-drazana isika : ka izay mihato-maso aloha velezinga, ary izay tsy ampy lanja fenoina.*

We are like the silver chain of our ancestors; the link that opens first gets a knock, and the one that's short weight is increased.

300.—*Aza mila voa tsi-ary : mangata-pary iray vany ka mitady izay tsy hiraaisana.*

Don't want what you can't get: ask for a joint of sugar-cane to find a means of separation.

For I have only one for myself, and what do I know about self-denial? Compare Nos. 36, 1736.

301.—*Mifankatia tsy mifamarafara : ady no farany.*

Love without a mutual understanding ends in a fight.

302.—*Anamamy no niraisana, ka beroberoka no nisarohana.*

Sweet herbs joined you, and bitter herbs parted you.

303.—*Ny ariary zato iombonany, ka ny kisoa iray no iadiany.*

They agree over twenty pounds, and fight over one pig.

Lit. *go shares in one hundred dollars.*

* See Chaps. xxviii. 1774. 1839, and Nos. 206, 212, 1082, 1083, 1884, 1855.

304.—*Aleo miady toy izay mankany Ankaratra tsy misy olona.*

Better fight than go to Ankàratra and live alone.

Lit. *where there are no people.* Compare No. 36.

305.—*Ny hohavanina tsy misy, fa ny hiadiana betsaka.*

There's none to be friends with, but plenty to fight with.

306.—*Aza manao fon' ny mpanefy; mikapo-dalitra ambony lovia, ka mamoy sasanangy tsy satry.*

Don't be too rough and be made to pay dearly for it.

Lit. *Don't have the heart of a smith : strike at a fly on a plate, and give up one-and-fourpence without intending it,* i.e. the price of the plate he foolishly breaks.

307.—*Harahina, tsy mahalala; tenenina, dia tezitra.*

Followed, he doesn't know; told about it, he gets angry.

Certainly he is very hard to please.

308.—*Lon-damba sy fahenimbary : ka izay maharitra ela dia herinandro.*

A rotten rag and a measure of rice : what lasts longest lasts only a week.

Said of inconstant friendships.

309.—*Papango amam-borona : iray toerana, fa samy hafa faniry.*

Kites and (other) birds : of one place, but different desires.

310.—*Totozy sy voalavo : iray volo, fa tsy iray raharaha.*

Rats and mice : of one colour, but not of one mind (lit. *business*).

311.—*Tsikovoka sy fandiorano : volo no iraisana, fa ny fomba samy manana ny azy.*

The water-beetle and the water-boatman : of one colour, but of diverse kinds.

These are names of different species of water-beetle, of the same colour, but of different habits.

312.—*Sakay sy voamperifery : ka samy mitondra ny ngidiny ho azy.*

Capsicum and pepper : they have each their own taste (lit. *bitterness*).

313.—*Sakamalao sy havozo, ka samy mitondra ny hanitra ho azy.*

Ginger and sassafras : they have each their own scent.

314.—*Tsiboboka sy toho : rano no iraisana, fa ny tarehy samy hafa.*

A tadpole and a fish : they live in the same water, but have a different appearance.

315.—*Ny an am-pon' ny siny (1) mangatsiaka, fa ny ao an-pon' ny vilany mahamay.*

What's inside the pitcher is cold, but what's inside the pot is hot.

Earthenware pots are used both for holding water and for cooking rice, etc. ; perhaps referring to man and wife.

316.—*Tafondro natifi-baratra, ka tafahaona samy loza.*

A cannon that shot a thunderbolt, so one dreadful thing met another.

317.—*Tsy mba haikaika hifanaovana ity, fa tsotsoro-mamba hisaravana.*

This isn't a game to join in (1), but a going down to the crocodile to get away from (as quickly as possible).

(1) Lit. *a challenge to be accepted.*

318.—*Isika roa lahy toy ny vato falia sy ny vanja : ka isaky ny mihaona mitselatra ihany.*

We two men are like flint and gunpowder : every time we meet we take fire.

319.—*Tsingala sy dinta : raha miray trano, loza ; ary raha mifanaikitra, antambo.*

A water-beetle and leeches : it's a misfortune if they live together, and a calamity if they bite each other.

Compare No. 355. See below, No. 321.

320. — *Kibokiboin' ny rariny, ka milaza tsy anontaniana.*

Prompted by the justice of his cause (1) he speaks when not asked to.

(1) Lit. *ticked by his right*. Compare those on Law and Justice in Chap. xvii.

321. — *Tandrema ny hanan-drariny; fa ny olombelona toy ny tsingala sy ny dinta, ka saro mifanaikitra.*

Beware of being in the right (1); for men are like the *tsingala* (water-beetle) and leeches and bite each hard.

(1) And heedlessly rushing into a contest in consequence of it. The *tsingala* is said to cause death if swallowed, unless an antidote is given quickly.

322. — *Ny ady volom-balala : ka izay tia azy hiany no ditsika.*

A quarrel is like the down on a locust: those who like it get their eyes full.

323. — *Tsy miady, sahala ; ka hiady, hisy resy.*

If you don't fight, you are my equal; if you do fight, one will be conquered.

324. — *Iray vady, iray anadahy, ka tsy misy hombana ; fa miady antanety, "Sahalà ;" manani-bohitra, "Aza mah-faka."*

One's a husband, the other's a brother, and there is no one to side with; if it's a fight in the field, "Be equal;" if it's an attack on a town, "Don't overcome it."

325. — *Mitolona am-bovo-tany, ka samy mavo.*

Wrestle in the dust, and you're both dirty.

326. — *Mitolona anaty rano, ka samy lena.*

Wrestle in the water, and you're both wet.

327. — *Mitolona am-batolampy, ka izay ratsy fihazona no vaky loha.*

Wrestle on the rock, and get a cracked head (or, he who can't hold fast gets a cracked head).

328. — *Ny ady tsy tra-mahahery vava.*

A dispute that doesn't affect you makes boastful.

Though it is just possible you could not keep out of it if it did.

329. — *Ady tsy ahi-mahatratra.*

A dispute not guarded against reaches yourself.

330. — *Ady amin' adala, ka ny hendry no miala.*

A fight with a fool, the wise will get out of it.

331. — *Hendry miady amin' adala ; ka havazinana no hita.*

Let the wise fight with a fool, and he will get covered with dirt.

332. — *Raha tsy te-hiady aza hianao, tsy maintsy miady raha miaraka amin' Imahaly.*

Though you don't want to fight, you must fight if you go with Imahaly.

333. — *Raha tia ady aza hianao, raha omen' olona tsy ho tia ady aza ?*

Though you don't like fighting, won't you fight if somebody gives you occasion?

334. — *Ibango aza adala : izay manendry azy dia tendreny.*

Even Ibango the simpleton strikes those who strike him.

335. — *Toy ny aretin' omby ny teny, ka izay mirehodrehoka no hifindrany.*

A quarrel is like a cattle disease, and it shifts to those who come into contact with it.

(1) Lit. *hawk and spit*—hence, to talk loudly, as one who thoughtlessly takes part in a quarrel.

336. — *Ny kitoza no tsara mihantona, fa ny teny tsy tsara mihantona.*

Keeping (1) does *kitoza* good, but makes a quarrel worse.

(1) Lit. *hanging*; *kitoza* is meat cut up into strips and hung up to dry. The longer it remains hanging the drier and better it is.

Compare No. 337.

337.—*Ny mpiady tsy misy mpampionona dia ho tonga any Antananarivo.*

Disputers who have no one to reconcile them will get to Antananarivo. •
It will end in a great quarrel, and they will be brought to the Capital for trial.

338.—*Toraka Ibaka Isondenda.*

Isondenda is like Ibaka (i.e. they are both bad).

339.—*Ny toerana no tsy lavorary, ny trano atsimo sy avaratra no mifanaratsy.*

The residence is not the thing, because you can't agree with your neighbours.

Lit. *because the houses north and south abuse one another.*

340.—*Atody tsy miady amim-bato.*

An egg does'nt fight with a stone.

341.—*Tsy mety raha ny latsaka an-kady indray no manofa-lamba.*

The one fallen into the ditch should not make the challenge.

Lit. *wave his mantle in defiance*, for he is evidently at a disadvantage.

342.—*Aza manirina olon-tsy afaka aina.*

Don't dare one that isn't dead.

343.—*Ady misy hena, ka ny mamoy no liana.*

A quarrel about meat, the one who gives it up is hungry.

344.—*Raha ambaka samy lela, avelao hikipaka.*

If it's a fight (1) with tongues, let (them) be skinned.

I.e. let them be skinned by constant action rather than give in to your adversary.

(1) Lit. *a deceiving with each other's tongues.*

345.—*Raha resy samy kary, avelao hisy maty.*

If one of two cats is beaten, let there be a death.

They are both bad fellows and deserve what they get.

346.—*Misy ady moa, dia miady ; tsy misy ady, dia ampanga no lazoina.*

If there is war, there is war ; if there is no war, let the ferns be burnt.

I.e. attend to other business. The bracken is burnt with the dry grass towards the end of the dry season.

347.—*Hiady, ka hisfamahan-tantely ?*

Will you fight, yet fill one another with honey ?

348.—*Izay tsy miady olom-bodo ; fa izay to-fo mpanosavy.*

The one that does'nt fight is a baby ; the one that bears malice is a witch.

349.—*Aza manao ady am-parimbona.*

Don't take an unfair advantage.

I.e. by overcoming by force of numbers only.

350.—*Aza manao ady an-tsanga.*

Don't be a contentious wrangler.

351.—*Aza atao resy momba ny mahery.*

Don't let the conquered go with the conqueror.

352.—*Ny Sakalava no miady azon' ny anjaingin' Imamonjy.*

The Sakalava fight because Imamonjy has acted the fool.

353.—*Aza manao fon' ny mpanefy.*

Don't be hard-hearted.

Lit. *have the heart of a smith.*

354.—*Saro-babay, ka izay voa aza tezitra.*

It's quite unintentional, so whoever's hit don't be angry.

An apologetic expression.

355.—*Aza manaiiki-dany roa, toa dinta.*

Don't bite at both ends, like a leech.

Compare No. 319.

356.—*Borera sy voantay mitolona, loha no amantarana azy.*

A brown beetle and a scavenger beetle struggling, you can only tell them by their heads.

357.—*Ny hofak' ondry no soa misavily, fa ny teny tsy mba soa misavily.*

A sheep's tail is good to swing, but a dispute isn't good to swing.

It had better be at rest. Compare No. 336.

358.—*Lany hatoka hoatra ny akoholahy matin' ady.*

He has a bare neck (1) like a conquered cock.

(1) Lit. *the nape of the neck is gone.*

359.—*Adin' akoholahy vorom-bato : ny mahery disadisaka, ary ny resy torotoro.*

A fight of game-cocks: the conqueror is bruised, and the conquered is torn to pieces.

Compare No. 1171.

360.—*Aza atao verin' ny adin-dreni-omby ny adin' ombilahy.*

Don't let a cow-fight (1) make you lose a bull-fight.

(1) Or, a fight about a cow or bull; i.e., Don't lose a large thing for a small one.

369.—*Raha ny mamba sy ny voay no miady, dia aoka hifandrafitra, fa tsy salaka ho tapaka, ary tsy lamba ho rovitra.*

Where crocodiles fight, let them go at it, for they spoil no clothes.

Against foolish interference in quarrels that don't concern you, like the preceding.

Mamba and *voay* are both names for the crocodile; the first is from the Swahili, the second from the Malayan.

370.—*Tsy ny adin' kisoa, ka vitan' anjonanjona hiany.*

Like a pig-fight, a few grunts settle it; or, a little bragging brings it to an end.

371.—*Misalasala, hoatra ny adin-ondrilahy : akorain-tsy mifampilanja ; avela hiany, mifamaky loha.*

Doubtful, like a ram-fight: urged on, they don't toss one another up; let alone, they break one another's heads.

372.—*Mimonomonona hoatra ny lalitra hianao ; miriorio hoatra angidina.*

You buzz like a fly, and flit about like a dragon-fly.

Calculated perhaps to make an angry man buzz a little louder and flit about a little faster.

373.—*Mitsaha-menimenina, hoatra ny vary sosoa voatondraka, na ny voangory mipaika.*

To cease murmuring, like boiling rice that has run over, or a *voangory* (beetle) that has knocked itself.

VI.—Gentleness and Kindness,† and Fierceness, Obstinaoy, and Churlishness.

375.—*Ny teny malemy mahamora harena.*

Soft words bring wealth.

Lit. *make wealth easy.*

376.—*Tsy mba ny akanga hanidina aho, fa ny vorombazahaentina amin' ny tendany.*

I am not a guinea-fowl to fly away, but a duck to be carried by the throat.

I.e. you can do as you please with me; characteristic of native subservience.

* Through lending the manuscript of these proverbs to a friend, two pages, including Nos. 361—368, and also No. 374, are unfortunately lost.—EDS.

† See on Humility, etc., Chap. xii. and Nos. 1341, 1344, 1360, 1420, 1477, 1342, 1652, 1959.

- 377.— *Tsy mba ny manta hotoazana aho, fa ny masaka efa mihintsana.*
I am not the unripe that will need plucking, but the ripe that has fallen off,
and will therefore give you no trouble and annoyance. Like the foregoing proverb.
- 378.— *Tsy mba ny rambony hanamavo ny vodiny aho, fa ny lelany hanamandina ny trafony.*
I am not the tail to soil the rump, but the tongue to polish the hump,
— and make it look sleek and glossy. A good hump means a good ox.
- 379.— *Aleo lozabe ahombiazana, toy izay malemy tsy azo.*
Better be rough and manageable than smooth and unmanageable.
- 380.— *Tsongoy fon tena, tsongoy fon' olona, fa raha mahalala maharary ny an-tena, mba mahalala maharary ny an' olona.*
If you know what hurts yourself, you know what hurts others.
Lit. *Pinch your own heart, pinch the heart of others; if you know what hurts that which belongs to yourself, you know what hurts that which belongs to others.*
- 381.— *Ny firaka no tsy mba vola ny lemim-panahiny.*
Lead is not silver because of its softness.
Said of a kind soft-hearted man, when comparing him to one of a sterner and harder nature.
- 382.— *Nify sy molotra, ka ny mahery no afaka aloha.*
Teeth and lips, the strong fall out first.
- 383.— *Mangahazo mangidy malemy; ka hanina amin' ny lemim-panahiny.*
Soft and bitter manioc; it is eaten because of its softness.
- 384.— *Ny lozabe maty tsy atrehin-kavana, fa toy ny adrisa, ka manaikitra ahitra irery.*
The cruel die not in the presence of their friends, but, like the locust, they bite the grass alone.
The *adrisa* is the female of one of the many kinds of locust.
- 385.— *Tsy mety raha sady ombilahy no masiaka.*
It's too bad to be a bull and be fierce too,
i.e. to be doubly fierce.
- 386.— *Aza manao vono moka.*
Don't kill as you would a mosquito;
i.e. easily or privately.
- 387.— *Mongoy mahefa.*
Crush and finish.
- 388.— *Mamba noana ka tsy mahamasim-panafody (or, tsy tam-panafody).*
A hungry crocodile whose mouth can't be shut by a charm.
- 389.— *Nahoana no ho faly asian-dratsy, toa tsihy?*
Why are you glad to receive the bad, like a mat?
Lit. *to have the bad put to you.* You are not a mat made for the reception of the dirt. Rouse yourself, oppose the wrong, and prevent yourself being soiled by it.
- 390.— *Ny tsihy no fola-mandefitra, fa ny olona tsy fola-mandefitra.*
A mat breaks in bending, but a man does not break.
Hence another form, as:
- 391.— *Tsihy va aho ka ho fola-mandefitra?*
Am I a mat to break in bending?
I.e. submission won't hurt me. Yet they say of a quiet peaceable soul:
- 392.— *Maty manao soa izy, mandefitra vao tapaka.*
He dies in doing good, bending before breaking.
- 393.— *Ny hitsiny tsy aritra, ny rariny tsy entiny mandefitra.*
Equity can't be kept back, the right can't submit (i.e. to wrong).

394.—*Aza manotri po manan ti'na, ka mandefi-mana-mahitsy.*

Don't repress your wish, and keep back what is right.

Lit. *Don't lay up in your heart when you have a thing you wish (to do), and endure what you have what is straight*; i.e. speak out your thought, and don't submit to wrong.

395.—*Aza manositosika ny tsy manombika.*

Don't push these who don't cut pieces off the mat.

When an animal is being cut up, there are frequently poor people (generally young children) present who slyly cut off some pieces of the worst parts and put them into a bag for themselves. Compare Nos. 613, 1001.

396.—*Aza miantambotsambotra toy ny vary kely an-daona.*

Don't dance about like a little rice in the mortar.

Much remains, but a little is soon scattered about by the pestle. Have self-control. A little pot is soon hot.

397.—*Raha tezitra, toy ny andriana; fa raha mianina, olona hi'ny.*

When angry, you are like a prince; but when quiet, you are only a man; i.e. a subject, like one of us.

Having no authority you have no occasion for a display of anger.

398.—*Fo tezitra tsy ananan-drariny.*

An angry heart is not possessed of right.

399.—*Tezi-dresaka, hoatra an-dRainitsimaniry.*

An angry talker, like Rainitsimaniry.

400.—*Tsy nahin' ny sosoa no mitobaka, fa ny mpandoatra no vinttra.*

They are not afraid of the rice boiling over, but the cook is in a temper.

401.—*Iezitra alohan' ny rariny, ka tsy misy asiana ny hitsiny.*

He is angry before the judgment,¹ and there is no means of setting him straight,

or, *doing him justice.* (1) Lit. *his right or justice.*

402.—*Ny fo rano mafana: ny tendrom-po tsy mba namana.*

The heart is like hot water: a quick temper is no friend.

403.—*Nahoana no malailay fonosina, toa fary?*

Why do you sting on being wrapped up, like sugar-cane?

404.—*Nahoana no saro po an-entana, ka ho sola irery?*

Why will you be so obstinate with your burden that you alone will be bald?

I.e. from the constant carrying of it on your head; why not get help when you can?

405.—*Nahoana no rodi-adin' ny ditra, ka loha raoky ny nenina indray.*

Why were you the last of the obstinate, and the first of the repentant?

406.—*Vilany vakin dRainibeboka: ifonana, tsy azo; avela, vita hiany.*

Rainibeboka's broken pot: if you ask forgiveness (for having broken it), you won't get it; if you don't ask, you get it without.

Lit. *if it is left, it finishes itself*; i.e. the man's anger passes away of itself, and you hear no more about it.

407.—*Ny ditra mahafaly, ary ny kivy mahavery.*

Obstinacy leads to death, and self-will to slavery.

To become a slave is, in Malagasy idiom, *'to be lost'* (vary).

408.—*Ny ditra mameno tanàna, fa ny nenina mamarina an-kady.*

Obstinacy fills the town, but regret throws down into the ditch (or fosse).

Deep fosses surround many of the old towns in the central provinces. They were formerly used as a protection in time of war. The self-willed fills the town with his noise, but repents of his folly when he is thrown down into the fosse because of his obstinacy.

409.—*Ny ditra maha-keli-ray.*

Obstinacy makes you a dwarf.

Lit. *little as to your father.*

410.—*Izay be ditra be nenina.*

Much obstinacy, much sorrow.

411.—*Raha ditra no atao, izaho manam-be noho hianao.*

If you will be obstinate, I will be more so.

412.—*Raha baka mahay manorirana hianao, izaho mba kirongo tsy misy hidirana.*

If you have horns that turn outwards and can give a side thrust, I have horns that turn inwards and can prevent you finding an entrance.

A figure taken from bull-fighting.

413.—*Ny lehibe entin-ditra, ny kely enti-kiry.*

The great carried away by obstinacy, and the small by self-will.

414.—*Saro tiana toa landy mohaka ; ka tiana vao misaritaka.*

Hard to please (1) like soft silk ; as soon as it is attended to (2) it begins to tangle.

Lit. (1) *to be loved* ; (2) *is loved*. The worst kind of silk, being very soft, is difficult to weave. It often happens that the more attention it gets, the more it disarranges itself. So with an obstinately disagreeable person ; the more amiable and attentive you are, the more unlovable and irritating he becomes.

415.—*Aleo maty reni-omby toy izay resy tohika.*

Better have the cow die than let your obstinacy be overcome.

416.—*Raha zaza sarotra ala nify, aoka ho sosona.*

If the child won't have his tooth out, let him have a double one.

The consequence of his stupidity. Compare Nos. 422, 1890.

417.—*Raha tsy ny olitra tsy misy maharesy tohika anao.*

Nothing will conquer your obstinacy but the toothache.

Lit. *the worm*, which is supposed to cause it.

418.—*Aza manao voa mivonto an-kibo.*

Don't be like a swollen seed.

Lit. *a seed swelling in the stomach*. Don't bear malice, or treasure up anger.

419.—*Raha an-kasomparana no atao, hohoriako samy tsy hanana.*

If you are going to be ill-natured (about it), I'll cut (it off), so that neither shall have it.

420.—*Aza manao botraika.*

Don't be self-willed.

421.—*Aza manao an-tenin' aina.*

Don't do it with the word of the strong (or *life*).

Because you are powerful, don't obstinately strive to have your own way.

422.—*Mananatra ny zaza ary nify, ka ny lamba no ariany, na ny fo zaka no enti-mananatra.*

Rebuke a full-grown child, and you must throw away your dress (as if in a rage), or you must rebuke with all your heart.

Compare Nos. 416, 1890.

423.—*Ny latsaka ao am-po tsy hamelona, ka ny an-tendro-molotra no lelafina.*

What you have eaten already is enough to kill you, yet you lick what comes to your lips again (i.e. you are evidently wishing for more).

Lit. *What has got down into the heart will not cause you to live*.

424.—*Andriamatoa mihanta ny ditra ; faralahy mandatsa ny nenina.*

Obstinacy is the self-willed elder brother ; regret is the self-upbraiding younger one.

425.—*Mizara hena amin' ny olo maditra ; ka aleo resy kely toy izay maintimainty.*

To divide meat with the obstinate ; better have less than your share than have it dirty,

by being thrown about in the general scramble.

426.—*Raha anarin-tsy zaka hianao, tsetsetra no ho an' ny olona, fa tsitsitra kosa ho anao.*

If you won't take advice, there is sorrow for others, but death for yourself.

427.—*Torahan-tsy hanina, toy ny sorohitra ambony fasana.*

Thrown at but not eaten, like the lark* on the tomb.

428.—*Ambao mitsaba-doharano : tsy hetaheta, fa hasomparana.*

A dog going into the spring : it isn't thirst, but churlishness.

Cf. "A dog in the manger."

429.—*Tsivohivohitr' ankizy ; ka manao soa horavana.*

Children's play ; it's doing good to undo it again.

430.—*Mody tsy sompatra, kanefa mangalatra ny ankondron' ny mavy.*

(You) pretend to be good-natured, yet steal the invalid's bananas.

431.—*Atoraka indroa, hoatra ny mpinona an-tanan-doza.*

Twice struck, like the one who undergoes the poison ordeal and is in the hands of (more) trouble.

432.—*Varatra tsy indroa miriatra.*

A thunderbolt doesn't strike twice,

and your anger shouldn't last for ever.

433.—*Masiaka amboa hadivory, ka mandany zara ny tompony.*

Have a fierce dog in the ditch, and bid farewell to fortune.

Lit. *it will consume its owner's share* ; its fierceness will prevent the approach of friends, referring often to such as may be likely to marry a daughter of the house.

434.—*Aza mandrora olon-tsy maimbo, ka hatao mangidy be fofona, hoatra ny tongolo tapa-bilany.*

Don't spit at people that don't stink, and make them like a broken pot full of nasty-smelling onions.

The natives expectorate vigorously on passing anything with an offensive smell, but they do not think of removing it out of the way.

435.—*Fatotr' amboan' Igara ; ka aleo maty toy izay ho lasa.*

Ingàra's fastening up a dog ; rather let it die than get away.

436.—*Aza manao vorona azon' adala ; ka na tsy maty aza, mifohafoha volo.*

Don't go as the fool does to the bird he has caught ; although it isn't killed, it's next door to it.

Lit. *it gets its feathers ruffled.*

437.—*Aza manao hazakazaka arahin-tosika.*

Don't tell one to go and give him a kick as well.

Don't add injury to insult.

438.—*Aza mamono biby mora.*

Don't kill a harmless creature (i.e. a snake).

439.—*Aza atao fandraka antoanim-pively aho.*

Don't make me a chisel to be knocked by the mallet.

Lit. *to be waited for.*

440.—*Aza manao : "Tsindrio, fa resy ; tano, fa azo."*

Don't say : "Press on him, he's beaten ; hold him, you have him."

A needful exhortation, and a very characteristic proverb, like the following :

* *Sorohitra*, the Madagascar lark, *Alauda nova*, Hartl.

- 441.—*Aza mandatsa vorona azo.*
Don't reproach a bird that's caught.
- 442.—*Akaro, aidino, hoatra ny ondrin' ilay sarotra.*
Lift up, cast down, as (is done to) the savage fellow's sheep.
- 443.—*Aza misompan-kava-manana.*
When you have a thing, don't be ill-natured to friends.
- 444.—*Aza manao hoe: "Raha ho ahy, mihondrahondra, fa raha ho azy, miangora-velona."*
Don't say: "If for me, let it flourish, but if for him, let it be plucked up living."
Lit. *let the branches hang down.*
- 446.*—*Aza manao tsingala mahalala ombin-tena.*
Don't be a water-beetle and know your own oxen.
I.e. Don't know how to take care of your own things only. The *tsingala* is a water-beetle which is said to be fatal if swallowed by oxen, as happens occasionally when they drink water. It causes excruciating pain, if not death, to people who accidentally swallow it. See ANNUAL VII., p. 339.
- 447.—*Aza mizaha lamba vaky (na rovitra).*
Don't look at a torn dress.
Don't look hard at a man's faults and thus make him ashamed.
- 448.—*Aza mijery arina an-tava.*
Don't look at the soot on the face.
Like the foregoing.
- 449.—*Aza manao horirik' Ambohipeño: aleo ho lo toy izay ho ankavana.*
Don't say of it as the people of Ambohipeño do of their *horirika* (edible arums): let them rot rather than be given to their friends.
- 450.—*Aza mandrara homana, toa fody.*
Don't forbid another to eat, like the weaver-finch.
The Madagascar cardinal-bird, a species of weaver-finch (*Foudia madagascariensis*, L.), is found in large numbers at harvest time and consumes a great deal of the ripe rice, just ready for reaping. The male is, during the breeding season, of a brilliant scarlet, except the wings.
- 451.—*Aza atao hala maina, hoatra ny vorondolo; tsy ho hanin-kena, tsy hosotroin-dro, fa vonoim-poana.*
Don't let it be hated causelessly, like the owl; not eaten as meat, not drunk as broth, but killed for no object.
- 452.—*Tsy mety raha an-dafin-drano, ka tsy holakanina, na an-dafin-tsaha, ka tsy hotoharana.*
Don't refuse to canoe me over when on the other side of the water, or to meet me when on the other side of the field.
See Chap. iv. Nos. 205, 216, 222, 274, 275, 344, 1746, 1767, 2021.

J. A. HOULDER.

(To be continued.)

*One number has been accidentally omitted in putting the figures to these proverbs.—EDS.



THE ABOLITION OF SLAVERY IN MADAGASCAR, WITH SOME REMARKS ON MALAGASY SLAVERY GENERALLY.

SUNDAY, September 27th, 1896, will ever rank as a memorable day in the annals of Madagascar, for on it was published in the "*Journal officiel*" a government decree, declaring that "*tous les habitants de Madagascar sont personnes libres.*"* Many remembered that just a year before, on the last Sunday of September, 1895, General Duchesne and his little band of toil-worn troops were gradually closing in on Antananarivo, preparatory to the final act of the campaign, which on the following day secured his victory.

The question of slavery has been under the consideration of the French authorities for some months past; and since the vote of the Chamber on June 20th last, declaring Madagascar a French colony, it has been known that slavery could not exist much longer. During the discussion in the Chamber M. Lebon threatened to resign if immediate emancipation was voted; but eventually M. Méline accepted a resolution in these words: "Slavery being abolished in Madagascar by the fact of its being declared a French colony, the Government will take measures to secure immediate emancipation." Many expected that some mode for the gradual extinction of the system would probably be adopted. A series of propositions to that effect was in fact drawn up and published early in the year by M. Le Myre de Vilers. The representatives of the French Government here have no doubt carefully considered the question in all its bearings, and the result of their deliberations has been the publication of this decree of immediate and universal emancipation of all slaves within the limits of the new colony, which comprises Madagascar and the dependent islands. The secrets of the Government were well kept, and no rumours of the coming emancipation seem to have been current on the Saturday. Thousands woke on Sunday morning (Sep. 27th) believing themselves still slaves, and found in a few hours that they were free. The news spread like wild-fire, and some slaves claimed their new-found freedom before their owners had even heard of the decree of emancipation.

*ART. 1.—Tous les habitants de Madagascar sont personnes libres.

ART. 2.—Le commerce des personnes est interdit. Tout contrat, de quelque forme qu'il soit, écrit ou verbal, stipulant vente ou achat de personnes, est nul, et ses auteurs seront punis d'une amende de 500 à 2000 francs, et d'un emprisonnement de 2 mois à 2 ans. En cas de réciproque ces peines seront triplées.—Elles s'appliqueront également à l'officier public convaincu d'avoir enregistré le contrat ou prêté son concours pour en faciliter l'exécution.

ART. 3.—Le maximum des mêmes peines frappera toute personne qui aura usé de contrainte pour en entraîner une autre hors de sa province, en vue de la vendre, et l'officier public qui, informé de cette contrainte, n'aura pas usé de son pouvoir pour y faire obstacle.

ART. 4.—Les personnes rendues libres par le bienfait de la présente loi, mais qui se trouvaient auparavant dans la condition d'esclaves, conservent la légitime propriété des biens meubles ou immeubles qu'elles ont acquis de leurs deniers ou par héritage.—Les immeubles—et les meubles subsistant en nature—qu'elles tenaient des libéralités de leurs anciens maîtres pourront être repris par ces derniers.

ART. 5.—Les personnes rendues libres par le bienfait de la présente loi, mais qui se trouvaient auparavant dans la condition d'esclaves auprès de maîtres dont elles désirent ne pas se séparer, pourront demeurer chez ces anciens maîtres, s'il y a consentement réciproque.

ART. 6.—La France s'interdit de frapper sur le peuple de Madagascar aucune contribution extraordinaire de guerre. Des secours, sous forme de concessions territoriales, pourront être accordés aux propriétaires dépossédés qui seraient reconnus dans le besoin.

The name of M. Laroche, which is appended to the decree, and who acted, it is stated, as "*depositaire des pouvoirs de la République Française à Madagascar*," will be handed down to posterity as that of the statesman who had the honour, by the stroke of his pen, to break off the fetters of slavery from tens of thousands of people in this land.

Certain steps tending towards this grand consummation have been taken in the past. In 1830 Mr. Hastie, acting under the instructions of Sir Robert Farquhar, Governor of Mauritius, succeeded in gaining the consent of King Radama I. to a treaty abolishing the odious slave-trade, which was for many years the cause of untold misery to the inhabitants of Madagascar. For several days it seemed doubtful whether the king would consent to sign the treaty; but at length the victory was won, and Copland describes the joy caused when this fact became known to the people. "It is impossible (he says) to give an adequate idea of the effect the signing of the agreement produced: thousands of natives were assembled round the palace, waiting, with the most anxious suspense, the determination of an affair which involved consequences of such vast importance to their future welfare. But as soon as the happy result was announced, and the British flag hoisted in union with that of Madagascar, a burst of transport, the spontaneous tribute of a grateful and feeling people to their monarch for the gift of liberty, shook the palace, and overpowered the thunder of the cannon which were firing on the hill."

Another step in the direction of abolition was taken, when Queen Ranavalomanjaka II., on June 20th, 1877, issued a proclamation setting free all African slaves (Mozambiques), thousands of whom had, in contravention of the British treaty, been secretly imported into the island.

But the crowning stroke has now been given to these preliminary measures by the bold and final action of M. Laroche. It has been known for some time how deeply interested he has been in the question; and he will now justly receive the congratulations and praises of all liberty-loving people throughout the world. His action has shown to all that slavery is intolerable to a free people, and that under the laws of the Republic, whose motto is "*Liberté, Égalité, Fraternité*," the distinction between slave and freeman cannot be allowed to exist.

The moment was well chosen for the publication of this decree. There has been, no doubt, on the part of many well-to-do owners, a sullen opposition to any interference with such a time-honoured and deeply-rooted institution as domestic slavery. Indeed to many of the people it seemed almost inconceivable how they could live at all without their slaves. Who, for example, would dig the rice-fields, or fetch the water from the spring, or gather the fuel, or cook the rice? This is all very natural, and none can deny that much temporary inconvenience (not to use much stronger words) must certainly result from sudden emancipation. The action of the French Government, therefore, has distinctly a tendency to increase the discontented classes, already, alas! far too numerous. Still, there are, on the other hand, certain considerations that seem to have made the moment actually chosen for the publication of the decree an auspicious one. The minds of the people

were much disturbed by the continuance of rebellion and brigandage in so many of the country districts; they were also greatly alarmed by hearing that all these disturbed districts were to be placed under military law, and that the French forces were to be largely increased; they had also for a long time past been expecting some measure dealing with slavery. Thus, amid the general fear and unrest, the excitement caused by the publication of the decree of emancipation has not been so great as it might have been at another time; and before men have well recovered from their surprise, their minds will have become accustomed to the new condition of things.

It is well at the present time to take a general survey of this ancient institution of domestic slavery. Its origin is lost in the dim past; but we can easily see how the number of the slaves was constantly being increased. Reduction to slavery was in old times a punishment attached to certain crimes, such, for example, as treason. Debtors too were often sold into slavery; and the wives and children of criminals were often made slaves. But the great increase in the slave population of Imèrina took place during the reigns of King Radama I., and Queen Ranavàlona I (i.e. between 1810 and 1861). During the reign of the latter especially, large military expeditions were sent almost every dry season; and these were little better than slave-raids, and thousands of captives were brought back as booty. The proportion of slaves to free persons in Antananarivo is said to have been two to one; but the proportion gradually lessened as we got farther from this centre of population, and in more remote districts the bulk of the people were free.

It is only fair to the Malagasy people to say that, speaking generally, the lot of their slaves was not a hard one. This is proved by the fact that slaves have been known to abstain from freeing themselves, though well able to do so. On the whole, they were kindly treated by their owners, and were better off than many poor free people. Many were regarded almost as members of the family. Still, one might often hear of cases of harsh treatment; wives were separated from their husbands, and children taken from their parents. One wealthy man, now dead, was commonly reported to have killed a slave annually as a sacrifice in the unlucky month of Alakaosy.

The children of slave women belonged to the owners of the mothers, and no slave had any true legal right to property. A common phrase used to express the rights of the slave-owners was: "*Akondronay no ho mamoa, ka azonay anaranam-po*" ("Our banana-tree bears fruit, and we can enjoy it to the full"). In spite of this, however, many slaves did, as a matter of fact, become owners not only of moveables, but also of lands and houses, and, strange to tell, a slave might himself own a slave. Indeed it is said that at times there have been slaves of the slaves of slaves, to the third or fourth remove.

Curious cases of subdivision often arose after the death of an owner; and a single slave might be partly owned by three or four people. A servant in one of the mission families once asked permission to be absent for a day, for, she said, "Mother is to be divided to-morrow"!

Contact with Europeans has done much to prepare the way for emancipation. The regular payment of wages, for example, has

gradually so affected the ideas of the people, that even large slave-owners have often been compelled to pay wages to their own slaves. Then it was impossible for the people to come into daily contact with Europeans without learning much as to their notions of freedom and of their detestation of slavery in every form. The acceptance of Christianity by so many of the people has also had a softening influence. The Church of course recognised no distinction between slave and free, but welcomed all to its membership. Slave-dealers were, in a meeting of the Imèrina Congregational Union, in June, 1871, declared to be ineligible for church-membership. Slaves have often been chosen as pastors, or deacons, of churches of which their owners were members. The children of slaves have been taught in the same schools as the children of free people. A gradual breaking down of the distinction has thus been going on for years.*

At the same time, however, it must be said that there have been no signs of willingness on the part of Christian people generally to allow the question of emancipation to be considered. Missionaries who have raised their voice against the evil system of slavery, as for example, Mr. Houlder, when lecturing in the College on the Pastoral Epistles, incurred no slight odium. An address by Mr. Joseph S. Sewell in 1876 also caused great excitement and indignation for a time. The venerable Isaac Sharp, during his visit in 1879, caused great uneasiness to many, not by what he really said, but by what the natives were afraid he would say. Just before one of his addresses some native pastors went privately to the missionary who had undertaken to translate for him, and said, "If Mr. Sharp says anything about slavery, be sure not to translate it." The missionary replied, "Mr. Sharp is many years older than I am, and I am sure he is a wise man. Whatever he says I shall certainly translate." However, the much dreaded address passed off with but the slightest reference to the delicate question. Only three or four years ago a missionary belonging to the Society of Friends was hissed in a large meeting of representatives of the churches because he simply asked them as Christian people to examine the Bible for themselves, and try to ascertain what it teaches about slavery. The only known instance of a native Christian proposing any measure for dealing with the matter was that of a Vonizongo pastor, who, on being reasoned with by his

* The following carefully-written statement from the pen of Mr. Joseph S. Sewell, in 1876, well illustrates the mode in which Christianity influenced the lot of the slaves: "Among the Christian population, and, indeed, among a much wider circle still (for the power of public opinion, influenced by Christianity, reaches far beyond those who are true Christians), the condition of the slave has, in many directions, been greatly improved during the last few years. Formerly, marriage was a rare thing among them, and connections were made and unmade very much according to the will of the master; now, where Christian influence has reached, their marriages are as much respected as those of others; formerly, much less care was taken in reference to food and clothing and the ordinary comforts of life than is now the case; and the care which a master should exercise over his slaves, as regards both secular and religious instruction, together with advice as to his kind and Christian treatment of them, is frequently dwelt upon by the native preachers in their Sabbath services. From interested motives the slave children are often sent to school, in the hope that those who have learned to read and write, and especially the girls who have learned to sew, may prove far more useful to their masters and mistresses than would have been the case without this knowledge. Several of the native preachers are slaves, and some of them are much respected by the congregations to which they belong; and by the almost unanimous voice of representatives from the various churches of Imerina, at their half-yearly meeting in June, 1871, it was decided that no one who makes his livelihood by the traffic in slaves can be admitted into church-fellowship."

missionary on the sin of one child of God treating another as his slave, proposed that slaves who were known to be children of God should be set free, but that the children of the Devil should be held in slavery ! The few Christians who, in obedience to conscience, liberated their slaves have suffered much social persecution in consequence.

Little credit, therefore, belongs to the native Christian communities for their attitude towards this question. The power that has dealt the death-blow to the evil system has not come from the awakened conscience of the native Christians, but as a law published by their new rulers, and as a consequence of Madagascar having become a French colony. At the same time the previous uneasiness that existed proved that the consciences of many were at work ; and thousands to-day acknowledge, at least to themselves, that the extinction of slavery was a just and much-needed reform.

It is too early to estimate at all accurately the effects of this decree of emancipation. It may for a time be a dead letter in many parts of the country, and may even increase the difficulties of the French in their endeavours to make good their claims over some of the outlying tribes. But in Imerina, and near all the larger ports, where French Residents and troops are placed, the decree will be effective at once. The decisive action has been taken ; the solution of the difficulty has not been spread over a term of years ; at one blow the fetters have been struck off from about a million of people, and it is not easy to conceive what power could again rivet them on the limbs of the emancipated slaves. Let us hope these multitudes of freedmen will show some sense of gratitude to their liberators, and will make good use of their newly-acquired liberty.

WILLIAM E. COUSINS.



THE ZANAKANTIRA TRIBE :

ITS ORIGIN AND PECULIARITIES.

MANY of the readers of the *ANNUAL* will remember the leading part taken by the tribe known by the name of Zanakantira in the outrage at Arivonimamo on 22 November, 1895 ; and very often was the question asked : Who are these Zanankantitra ? To those whose work is to the west of Antanànarivo the name is familiar enough, though probably many of these even do not know the origin of the tribe. I have therefore been interested in making inquiries on this subject from those likely to know ; and the information obtained I have embodied in the following article. I cannot indeed vouch for the correctness of all the details, though I believe them to be generally true ; and I have much pleasure in placing it in the hands of the editors of the *ANNUAL*, who have done so much to add to our knowledge of things pertaining to Madagascar.

At the time when the division took place between the Andriana and Hova, the forefathers of the Zanakantitra were among the Andriana;* but at their own request they were considered to be Hova, and they resided in the neighbourhood of the Ankátratra mountains. Many years, said to be 150, before the time of Andrianampoinimerina, father of Radama I. (1810—1828), there lived a man by name Rafénitra; he had a large family of children. Among these was a son named Andriantsihànika; he removed to Fandravàzana, to the north of Ankaratra, where he married. For many years, however, he had no children, and it was not until he and his wife were both well advanced in years that they had one son born to them; this boy was called Rabemazava. The neighbours, on the other hand, called him Zanakantitra, or 'child of the aged ones.' Rafénitra and his wife lived to a great age, and their son, Rabemazava, married and settled at Ambòhijànadralambo, near to the river Katsaoka. He had nine children—eight boys and one girl—and as they grew up, passers-by pointed with their lips, as is the custom of the Malagasy, and said: "That is where the Zanakantitra live." The eight brothers, we are told, treated their one sister with great harshness, almost as if she was their slave, sending her on all their errands. In consequence of this treatment she became very thin and weakly, much to the grief of her father. One evening, it is said, she was sent by her brothers to work their sweet-potato fields; the night became very thick and foggy, with the result that she could not find her way home, but remained in the fields all night. At this her father was very angry, and made it a law in his family, for children and grand-children and their descendants alike, that the girls should not be sent any more to work in the sweet-potato fields. I am told that it is only in recent years that this custom has been to some extent relaxed.

But it was not only in this particular that the women of this tribe were treated with more consideration than is the case in many other tribes, for it has long been the custom that work usually done by women has been done by men, for instance, watching the silk-worms, weaving, rice-planting, etc. There is a proverb which says: "*Adaladala toy ny lehilahin' ny Zanakantitra: sodokan-dravehivavy ka mamboly vomanga lehilahy*;" this may be translated as follows: "Foolish people like the men of the Zanakantitra tribe: they are befooled by the women, and men work the sweet-potato fields."

Rabemazava (Razanakantitra) and his wife, like their parents before them, lived to a great age; they were buried at Ambòhijànadralambo, where their grave is still shown; their remains, it is said, are yet occasionally "turned over," and have new *lamba*† put round them. In their lifetime they were, like father Abraham of old, very particular that their children and grandchildren should not marry out of the family, and so wives or husbands, as the case might be, were secured for them from their relations living at Fandravàzana or in Ankaratra. To their credit it should be recorded that the members of this tribe have always been noted for their faithfulness to the marriage vow; divorce has been comparatively rare among them, and to this probably should be attributed

* The Andriana are the noble clans, six in number, and are descendants of ancient sovereigns of Imerina; the Hova are all the rest of the free people. In the widest meaning of the word, the Andriana are also Hova, as distinguished from other tribes, as the Betsileo, etc.

† Cloths, usually of dark-red silk.

not only their rapid increase in number, but also the fact that as a tribe they are noted for the strength and robustness of the individuals composing it.

Up to the time of Andrianampoinimerina this tribe increased in numbers very rapidly, and gradually extended its borders, sometimes by peaceable means, but more often by warlike ones; they were very brave in war, and none were able to stand before them. The following is a list of well-known towns in Ambôdirano, where they have always been numerous, and in some of which they are almost the only inhabitants: Fënoarivo, Ambôhimarina, Ambôhimasina, Ikëlivôdy, Ambôhibôahangy, Miakôtsorano avàratra, Ambôdiranokély, Tsimatàhodôza, Ambátomitsangana, Vinàninôny avàratra, Ambôhitrambo, Ambôhibolôlona, Ambôhitrantenaina, Ambôanana, Andàvabato andrëfana, Andrëfan' Ankàratra.

Of course, like all the rest of Madagascar in those days, the Zanakantitra believed in idols; though, as is well known, the first idol possessed by this tribe was named Ramatsátso ('Insidious') and was kept by a man named Ikôtomainty, living at Ambôhiborona, a well-known place some three hours west of Antananarivo. When he died the idol was taken to Ambohimarina, near to Fënoarivo, and its name was changed to Imahitsinandriamanitra, i.e. 'The true one of God;' and although they had several idols, they are all described as being connections of this one, as one informant says: "*Kanefa toa sampan' Imahitsinandriamanitra ihany ireny.*" Subsequently their most famous one was called Rafôhitànana, literally, 'Short-handed,' figuratively, 'One who does not take other people's property,' or Ravolôlona, i.e. 'The cherished one.' It is said that the wood from which it was made was taken from Fàrahantsana, the famous falls on the river Ikopa, to the north-west of the Capital; it had a human head, but the body of an animal; it was covered with red cloth, ornamented with beads, and anointed with honey and castor-oil. Very frequently small pieces of the wood of which the idol was made would be taken as a charm and given to members of the tribe who were going on a journey or were rengaged in any dangerous work; and then, when it was nearly all gone, the idol would be renewed by wood fetched again from Farahantsana. Ravololona was thought to be a very powerful gun-charm; those who had it in their possession believed that not only had it power to prevent the guns of their enemies from going off, but even if they chanced to go off, they would be entirely ineffective, and thus they would be able to gain easy possession of any place they attacked. When this tribe was going out on a warlike expedition they procured an "*ômbry volon-tàkatra*," that is, a bullock neither black nor red, but dun-coloured, and then the heads of their spears and the blades of their hatchets, with all their other warlike implements, were stuck into it while alive; because they thought that any weapons smeared with blood were pleasing to Ravolôlona, obtained his favour, and so were effective in warfare.

They also believed that Ravololona had power to heal; according to the belief of this tribe all diseases were the result of being bewitched, and then, if they came to the idol, they would be cured, unless they had done something forbidden by it. They did not believe that Ravololona had power to bewitch, only that it could prevent others from bewitching them, or, if they were bewitched, could heal them. As I have said, this tribe

has always been famous for the sound constitution and general good health of its individual members. Of course there are many things which this tribe may not touch or have in their possession; goats, for instance, are entirely forbidden, even the name may not be pronounced by them; and if one passes by, they think that there is sure to be a water-spout. Lemons, onions, snails, and many other things are in the same category of things *fady* or taboed. Any one eating onions was, according to their opinion, sure to become a leper; of late years, when they have seen many of their tribe eating them without becoming lepers, the old people say; "*Vonton' ny odim-Bazaha ireny*," which may be translated thus: "They are filled with (that is, fortified or protected by) the charms of the foreigners."

All accounts agree in saying that many of the customs of the Zanakantitra will compare favourably with those of some of the other tribes; they are not oppressors of the poor, and they have few robbers or highwaymen among them. They have always been famous for hospitality; a stranger is always sure of obtaining a night's lodging, and is never allowed to pay for his food. It is said that if a spade were left in the field overnight, its owner would be sure to find it there on the following morning. At the same time they are somewhat uncouth, and not very respectful one to another, and are not given to making apologies. I am told that the common expression: "*Mbay lalana, lompoko é*," which may be translated: "Please let me pass," or, "Pray excuse me," is seldom if ever heard among them.

Again, I am told that they are about the dirtiest tribe in Madagascar, which is saying a good deal; they will sometimes go for a year without bathing. Their houses are very small and dirty, generally left unplastered, whether inside or out, and although mats are spread on the floor, it is often almost impossible to say whether there are any or not. The clothing of the people is on a par with their houses; very often their *lambas* are not washed at all, but are simply allowed to wear out; they laughingly ask: "What wears them out so much as washing them?"

There are a number of large markets in the district occupied by this tribe, and these used to be scenes of frequent disturbance, not indeed between members of the tribe, but if any of this tribe were attacked or defrauded by outsiders, then all their fellows came to the rescue, for there is a very strong bond of union among the different members of the Zanakantitra, and they were never known to be beaten in any dispute or conflict with other tribes. To those whom they conquered no mercy was shown, their houses were destroyed, and all who fell into their hands were killed. When there is any large assembly of this tribe, such as a *kabary** or *samadihana*† there is always great alarm in the district, for their young men often join together in bands and become the terror of neighbourhood.

The Zanakantitra have never been great traders, nor have they been in the habit of travelling to distant parts of the island; their motto might be: "I dwell among my own people." They are of the farming class; they cultivate the soil, breed cattle, pigs, etc., and as the are very penurious and spend very little, they become, for Malagasy, very rich; I am

* A public assembly for political or tribal purposes.

† A ceremony observed when transferring the corpses of ancestors or relatives to a new tomb, or when wrapping the corpses in new silk cloths; see ANNUAL XVI., p. 406 *et seq.*

told that those who are thought to be of the very poor could easily produce forty dollars or more. But a stranger has no means of knowing their condition; for, judging from appearances, they are all alike poor. One of my informants says that once he met a man whom he thought to be very badly off, so, taking compassion upon him, he gave him a small piece of money of the value of perhaps a halfpenny. The man received the money with many thanks; but judge of my informant's surprise when, on the following day, he saw him putting out fifty dollars at interest!

"There is another man I know," says my informant, "who lives at Amboanana; when I first knew him and his wife they were evidently very poor, and just kept a few fowls, but now they are quite rich; they have thirty slaves, two or three pots full of dollars, and a lot of rice-fields. In the weekly market I see them buying a piece of meat, of the very worst quality, for less than twopence, and they laugh at one for being willing to spend sixpence over some good meat. They have buried 500 dollars in the ground to precede them into the spirit-land (*Ambôndrombè*). The rest will be divided among their children." These are fair specimens of the character of this tribe, as regards money or property; but when there is anything affecting their honour, they will give money to any extent.

Very early in their history the Zanakantitra were subject to *Andrian-tônimamo*, king of *Arivonimamo*; but when *Andrianampoinimerina* was establishing his power, some of their leading men went and made their submission to him. But it is said that when this famous king came west with his army, he was opposed by the Zanakantitra. He, however, easily repulsed them, upon which they said: "It is the wish of *Ravololona* that this king should reign over us."

When the fortifications at *Ambôhimanga* were being made, this tribe fought with the people of *Imerina* as to who should go and do this work; the latter were beaten, and they were driven out of all the towns occupied by the Zanakantitra. Subsequent to this, when the first *Radama* had established his power, and the names of all the men in *Imerina* were being written down for the purpose of building the large house at *Isôanie-ràna*, the Zanakantitra were very crafty, making out their numbers to be only 830, though they were really many more. And from that time to the present they have always been very averse to having their names written down for government purposes, and the authorities at the Capital have been equally unwilling to press them very closely in this matter. At the time of the outrage at *Arivonimamo*, in November, 1895, one great inducement used to unite all in resisting the French was the cry that the names of all, men and women alike, were to be written down; of course the idea was that they would have to do *fànompôana* (enforced service) for the French.

It remains now only to tell of the reception given by this tribe to the Gospel, or 'the praying,' as it is called. When *Ranavalona II.* came to the throne and issued her *kabary* saying that she was going 'to pray,' all the people took this as a command that they also were 'to pray.' And when the order was given that the idols were to be burnt, all *Ambodirano* assembled at *Mazàvatôkana*, near *Ambôhimandry*, to hear it read. When the Zanakantitra heard this, they are said to have been almost dumfounded, so astonished were they at this command. It can-

not be said with any certainty whether Ravololona was burnt or not. One of my informants is firmly convinced that it was not; he believes that they pretended to burn it, but that something else was burnt in its stead. At any rate, within a very short time, either this idol or another like it was certainly in existence, and all the customs connected with its worship, if worship it can be called, were re-established; the only difference being that they were done in secret instead of openly. Yet while this was true, if there was anything that very much troubled the people, like a great epidemic of sickness, or the two recent wars, the idol was publicly shown, and the rites connected with it were openly performed, so that all could take part in them. It is also quite true that the house where the idol was kept was never destroyed, but remained until the time of the disturbance which took place at the end of 1895. During all these years the people, who were thus trusting and believing in their idol, were making outward profession of Christianity, and would have assumed an air of great indignation if any one had expressed doubt of the reality of this profession.

Not long after the burning of the idols many churches were established in the towns occupied by the Zanakantitra; among these were the following: Ambohivololona, Amboanana, Andavabato (west), Manalalondo, and Isaha. These have always been important places in the district under the care of the F.F.M.A. As in other parts of Imerina, at one time large numbers attended at these places; we might very easily have been deceived and have thought that the Gospel was having it all its own way; but it was really far from this, and it must be confessed with sadness that many of the church members, and some even of the preachers, were secretly believing in Ravololona and, so far as they dared, joining in the old customs connected with its worship. Those who were most acquainted with the district best knew how very few of these people really accepted the Gospel, and how very far from worthy of being called Christian the bulk of them were. In later years the numbers attending the chapels were very much reduced.

I have alluded to the dislike this tribe had to having their names written down, and for years they were very unwilling to let their children learn in the schools. It was looked upon as a species of *fanompoana*; a certain number, they thought, must learn, so that it could be said that they had schools; so a number in each town were deputed to learn, and were *paid* for it. I am assured on the best authority that it was no uncommon thing for children to be paid ten, twenty, and even thirty dollars for learning in the schools! Of later years, however, there has been a great change, and some of the largest schools in the district under the care of the F.F.M.A. have been in the towns occupied by the Zanakantitra, and, as a rule, their children have shown remarkable aptitude for learning.

My task is now nearly finished, but I am sure the editors will allow me a closing paragraph. I have alluded to the fact of its being doubtful whether Ravololona was really burned or not, but however that may have been, either it or its successor was soon believed in as much as ever, and its supposed power acknowledged, though secretly. On Saturday, November 23, 1895, the day after the outrage at Arivonimamo, all disguise was thrown off, and throughout a large district it was proclaimed,

in words to the following effect: "We have no God but Ravalolona." Numbers, who for years had been in the habit of attending a place of worship, while secretly acknowledging this idol, now appeared in their true colours, and made an end of all sham. In the words of one of my informants, on this Saturday the shouts of the Zanakantitra echoed almost through all Imerina to the effect that 'the praying' was no more, and Ravalolona only was God. But, adds my informant, it was like an egg fighting with a stone, for their rejoicing was very short-lived; in their fury and their folly they went out to meet the French soldiers, and at Antsahavola they had a fair opportunity of testing their idol in that which was, as we have said, supposed to be its peculiar power, the preventing the guns of the enemy from going off. In this fight (Sunday, November 23) they were utterly defeated; some of their number, approaching the French, held up their *lambas* to catch the bullets, with what result we need not say. On two or three other occasions they joined issue with the French, always with the same result; then the Zanakantitra themselves confessed that the god which they served was not able to deliver them, they acknowledged that they were beaten, and that hopelessly and, so far as Ravalolona was concerned, for ever. The Zanakantitra cast it off, would have it no more; before the French issued the command for its destruction, it had already been destroyed, for it was no longer believed in, and so their command was unnecessary. Hardly ever, I should suppose, has there been a more public and palpable manifestation in Madagascar of the utter futility of the trust in idols than there was at that time.

Before the murder of the Johnsons, not even the Queen was honoured as was Ravalolona, the god of the Zanakantitra, but within a week from the time of their death, those who had been the first to believe in and honour it were the first to acknowledge its worthlessness, and that for all these years they had been trusting it in vain. It was the Zanakantitra who, inspired, as they thought, by Ravalolona, murdered the Johnsons; if it had not been for their death, this idol would most likely have been still trusted and believed in. So we have already abundant proof that they did not die in vain.

HENRY E. CLARK.

A NATIVE MALAGASY LYRIC.

THE Malagasy are a music-loving race, and from ancient times they have had their wandering minstrels and their favourite songs. One may often see by the roadside, or on the outskirts of a crowded market, one of these minstrels, with his rude guitar (the *lokanga*), playing a simple accompaniment to his song. The twang of the music is sure to draw a crowd, and many reward the musician by giving him a small present of money. The music is simple and monotonous, and not very attractive to Europeans; but there is a softness and plaintiveness about it that seems greatly to move the hearts of the natives. The songs used by these wandering minstrels are not arranged according to any strict laws of metre, and rhymes scarcely ever occur in them. The nearest forms of poetry known to them are found in the Hebrew Scriptures. Lines of about the same length are used, and phrases are balanced one against the other, as in the parallelisms of Hebrew poetry. Concise figurative expressions are chosen, many of them taken from old proverbs and familiar sayings.

A specimen of these popular native lyrics was printed in a recent number of the "*Gazety Malagasy*," and I give it here with a translation, thinking some readers of the ANNUAL may be pleased to see what kind of songs are most attractive to the people of Madagascar.

I have not tried to keep strictly to any metre, but have done my best to use such English expressions as seem to me to correspond with the style of the native composition.

W. E. COUSINS.

THE FATHERLESS CHILD.

- | | |
|---|--|
| 1. Mandrenesa, ho' aho, rey olona,
Mihainoa, ho' aho, rey vahoaka :
'Zany loza mpanjò ny olona,
Fahorian' izay tsy an-drays ; | 1. Hear me, I say, O ye people,
Listen, I say, all ye crowds :
This is the direst of evils,
The lot of the fatherless child. |
| 2. Fa ny manan-drays, ka zaza mi-
hanta,
Ny eo reny, ka zaza miangola :
Fa ny tsy an-drays, fitenin' ny
olona ;
Ny lavi-dreny, ataony faniraka ! | 2. For they who have fathers are
cared for,
And they who have mothers,
indulged ;
But the orphan is every one's butt,
And becomes like the slave of
all masters. |
| 3. Mahantra, ho' aho, ny hazo bo-
rona,
Mitoetra amboni-vato tsy maitso ;
Maniry indray, ka tsy lava,
'Zany no zaza kamboty ! | 3. How wretched, I say, is yon
shrub,
Perched on bare rock, with no
greenness ;
It grows, but becometh no taller,
Such, my friends, is the lot of the
orphan. |
| 4. Rovi-damba ririnina,
Mosarem-pahavaratra ;
Mandeha tsy misy mpiahy,
Tonga tsy misy mpitsetra ! | 4. In winter his dress is all tattered,
In harvest by hunger he's pinched ;
On a journey he has no com-
panion,
At nightfall no welcome he meets. |

5. Vitsika nanara-kitay izy,
Ka mangingina irery tsy an-
tanin-dray :
Hariva aty an-tanin' olona,
Ory tsy misy mijery.
6. Zana-borona anosin-drano izy,
Kely nilaozan-dreny, zareo ;
Ka miherikerika irery,
Mijaly tsy misy mitsetra.
7. Ory izy, rev tany aman-danitra !
Ory izy, Andriananahary !
Fa tsy an-drays fahakely izy,
Ka velon-tsy misy mpiahy.
8. Ho tomaratra ny andro atsina-
nana,
Handondona ny orana atsimo,
Hikotroka indray ny any andre-
fana :
Hotsaroany izy tsy an-drays.
9. Dia hisento onena ny fony,
Tsy ilaozan' izay fahoriana,
Tsy ialan' izay fijaliana
Eto ambanin' ny rahona.
10. Ary ho tsinana ny volana andre-
fana,
Ho fenomanana ny atsinanana ;
Hotsaroany ny manan-drays,
Ka hangoraka indray re ny fony !
11. Fa kely fizoin' ny mafy,
Tsy mahita izay fifaliana,
Tsy mahalala izay firavoana ;
Fa ny mijaly hiany no fantany !
12. Mitapitapy toa voron-kely na-
riana,
Main-tenda toy ny omby any an-
kay ;
Dia tsy manana andro tsy ija-
liana,
Fa miferinaina isan' andro.
13. Maraina, mifoha, misento ;
Hariva, hatory, mitsetra ;
Zezehan' ny tsiahin' ny lasa,
Tongoavan' ny hita ho avy !
5. Like ants that are clinging to
firewood,
He's alone in a land not his own ;
Evening comes, he's alone among
strangers,
Woe begone, without comfort
or cheer.
6. He is like a small bird on an
island,
Forsaken, while young, by its
dam ;
In solitude, gazing around him,
He suffers with no one to cheer.
7. O earth and heaven, how wretched !
O Lord our Creator, how sad !
For fatherless even in childhood,
He lives, but has none for his stay.
8. The morn is all bright with the
sunrise,
The storm loudly peals in the
south,
The west too resounds with the
thunder ;
His fatherless lot he bemoans.
9. His heart shall still sigh in his
sorrow,
And trouble shall cling to him still,
He never knows freedom from
torture
Beneath these sad cloud-sha-
dowed heavens.
10. The new moon appears in the west,
The full moon shines bright in
the east ;
He bethinks him of those who
have fathers,
And once more deplures his sad lot.
11. He is young, but o'ertaken by evil,
He sees nought that can brighten
his lot,
Joy is by him never tasted ;
To suffer is all he can know.
12. Like a cast-away bird he's in
fear,
With parched throat, like an ox
on the moor ;
He has never a day without pain,
But unceasingly breathes out
his sigh.
13. As he wakes in the morning, he
sighs ;
As he lies down to sleep, he must
groan ;
All burdened by thoughts of the
past,
And by foresight of woes yet to
come.

14. Ory izy, rey vahoaka !
Mijaly izy, rey olona !
Koa manafatra izay velona,
Sy mandatsa ny tenany koa.
15. Mba ho fantatry ny any aoriana,
Sy tsy ho hadinon' izay ho avy,
Fa ny velona tsy an-drany .
Ny tsy ary no tsara kokoa.
16. Ko' ary hanao ahoana ?
Fa tsy afa-misondrotra an-dra-
hona,
Tsy vanon-kisitrika an-tany,
Ka tery tsy maintsy mitondra.
17. Akohokely latsaka an-kady izy,
Hiantso, tsy misy mandreny ;
Hanidina, tapaka elatra ;
Hijanona, mitondra mafy !
18. Avoko an-tampon-tanety izy,
Ka manjavonjavona irery,
Sakafon-jaza mandalo :
Velona, fa manana aina !
19. Eny, ho' aho, rey olona !
Eny, ho' aho, rey vahoaka !
Mafy raha samy velona,
Mangidy raha samy miaina.
20. Ory izy, rey tany aman-danitra,
Mijaly izy, rey vahoaka man-
dalo !
Todiho izy, ka iantrao,
Aza ariana, fa mba tsinjovy !
21. Nony mihira ny manan-drainy,
Nony mifaly ny manan-dreny ;
Izy kosa mifia-dranomaso,
Izy kosa mijaly manokana.
22. Izy ka maizim-bolana irery,
Ho faty hamihina ahitra irery ;
Ho lasa tsy atrehin dray !
Veloma, rey tany ama-monina !
14. How wretched he is, O ye crowds !
Ye people, what pain he must
feel !
He would plead now with all
humankind,
And still would repeat his sad
moan.—
15. That they who come after may
know,
And future ones may not forget,
For yon wretched, fatherless lad
'Twere better he ne'er had been
born.
16. What then, alas ! can be done ?
He cannot climb up to the clouds,
Nor hide away under the sod,
But still must he carry his load.
17. Like a chicken fallen into the
fosse,
He cries, but there's none to
reply ;
He would fly, but his wing is all
crushed ; [lot !
If he stays, how distressing his
18. Like *avoko** growing out on the
moor,
In lonely obscurity hid,
He's a meal for a child that may
pass ;
All his life is, alas ! a vain show.
19. Yes, to you, O ye people, I speak !
Yes, I say it to you, O ye crowds !
That this of all lots is the worst,
The bitterest known among men.
20. O earth and heaven, how wretch-
ed !
Passers-by, will ye feel for his
pain ?
Throw on him your pitying glance,
O cast him not off, but behold !
21. Whilst they who have fathers
may sing,
And they who have mothers
rejoice ;
He for his drink has but tears,
And must bear his sad lot all
alone.
22. In a moonless night he must
wander,
And in death, all alone hug the
sod ;
He departs with no father to
mourn him !
Farewell, then, my neighbours
and friends !

* *Avoko*, a common plant, *Vigna anguensis*, the root of which is sometimes eaten.

A TAIFASY VILLAGE.*

ONE could scarcely wish for a pleasanter scene than that offered by a Taifasy village at a little distance. Sloping up from a fine lagoon, or built on the crest and sides of a low hill, or embowered in luxuriant foliage close to the banks of a river, it is full of beauty to the eye of a traveller. Alas! the sweet delusion is soon dispelled, for as we go near and enter, nostrils, eyes, and ears are all disagreeably assailed. Smells, dirt, noise; squalling of children, shrieking of women, and bawling of men, form a not very civilised welcome to us. Should it be getting dusk, troops of humped cattle are being driven in to be herded for the night. Their bellowing and lowing, together with the barks and yelps of dogs, add additional zest to the general disorder and uproar.

Happy are we if accustomed to such scenes! With a calmness almost unknown in northern latitudes, we quietly take up our abode in the least dirty-looking house we can find and make ourselves comfortable for the night. After two or three visits from the headmen of the village, who beg our acceptance of rice, fowls, and eggs, we have dinner, and by and by lie down to rest. Not till 10 o'clock or so is the village quiet, and it is useless trying to sleep ere the people in the huts around have settled to slumber. Should there be a feast or carousal going on, we may not get any sleep at all, owing to the pandemonium which reigns through the night.

Morning, however, comes at last, and with it the bright radiant sun, the glory of the tropics. A hurried toilet, a hasty breakfast, and we leave our hut for a stroll, noting what there is of interest in the village and its inhabitants, so as not waste the day we have to spend here before journeying further on.

The village is built without any regard to beauty or convenience, each man putting his house where he pleases, as long as he does not infringe his neighbours' rights. Architects being unknown, one almost invariable plan of house construction is followed. The house runs in length from north to south. The principal door faces the west, and another door is on the east. A wooden frame in oblong form, with

* *Note.* The following article refers to a Taifasy village before the war of last year. Some of the statements do not at present apply, Aug. 1896. - C.C.

Some of our readers may possibly ask: Whereabouts in Madagascar is the Taifasy country? The Taifasy are one of the smaller tribes occupying a district on the south-east coast of the island. Their territory is comprised between that of the Taimoro to the north, and that of the Taisaka to the south of them, and extends for an undefined distance north and south (perhaps 30 miles) of the three rivers which unite and fall into the sea at the small port of Ambahy or Farafangana, which is the chief town. Ambahy is about 350 miles south of Tamatave, and 160 miles north of Fort Dauphin. According to some authorities the name Taifasy is more correctly written Ntefasy. A mission station of the L.M.S. was commenced at Ambahy in the year 1887, by the Rev. G.A. Shaw, and was carried on with much success by him and his wife for a few years. For five or six years past the Rev. C. Collins has been stationed here, and the mission was reinforced in 1892 by the Rev. E. Pryce Jones. Among the Taifasy, as also among the other south-east coast tribes, there is a distinct Arab element, arising from ancient settlements made by Swahili Arabs. Most of the *andriana* or chiefs are descended from these foreigners, and the Arabic tongue is still known by many of the people; see ANNUAL II., p. 203, 219; VII., p. 21; IX., p. 100; etc. - EDS.

massive posts at either end, upon which to carry the ridge, forms the base of operations. The walls are filled in with a kind of lattice formed of the midrib of the leaves of the traveller's-tree. The floor is raised above the ground, and is simply the bark of the same tree beaten flat and laid on rough timbers. The leaf of the same serves for thatch; the two doors are made of lattice similar to the walls, and kept in place by long narrow poles, swung inside the house. When newly finished the houses look very pretty and neat, but they soon decay, and constantly require mending and patching so to as keep them anything like water-tight. The chief of the village lives in a loftier and better-built house, with crossed poles at the gables.

Let us step inside one of the houses. We do not perceive the "stiffness" common to houses in the interior; on the contrary, the morning breeze makes its way into and through the house at pleasure. We look round the single room vainly for beds, chairs, tables, cupboards, and sundry other appendages to civilisation. A large fireplace, taking up an altogether disproportionate space, is placed at the south end. Over this is built up a solid frame of several shelves, one above another, the whole fixed on four posts. Cooking-pots and various utensils are placed on these shelves. The upper ones are for drying and storing purposes. The walls and floors are neatly covered with mats, and a number of smaller mats are kept in reserve for sleeping purposes, for those whom the host may delight to honour. Two or three straw stools, a flint-lock gun, some spears, a rice mortar, and sundry cotton garments, complete the furniture and decorations of the hut. But what is this singular piece of four-hooked wood suspended from the centre of the roof, in such a way as to give any one a sharp rap on the head, if he does not carefully keep out of its way? It is a favourite and effectual device to prevent Master Rat from getting to the miscellaneous articles thus hanging in space. A large smooth wooden collar is fixed over the hooks, and he cannot get below, and so is deprived of what he thinks his lawful prey!

Come outside and stroll further. What are those neat little erections raised on posts about five feet above ground? They are rice-granaries, and each post is fitted with a smooth collar underneath, similar to those just described, this time to prevent Master Rat climbing up. The people often keep their best clothes in these granaries, also other valuables which might be lost were they exposed to view in their dwellings. Under and around some of the rice-houses, the ground is kept clear and open for public gatherings, which form quite a necessary part in the life of all Malagasy. Here too at eventide, when the sun is withdrawing his fiery beams, and the cool breeze of heaven plays on the earth, one can sit in true Malagasy fashion and discuss the politics of the day, or the last new thing in mode or morals.

A long dilapidated building, a few paces further on, now arrests our attention. We enter and find twenty to thirty children being instructed by an intelligent-looking youth. They are divided into three groups, the first calling out the letters of the alphabet under the direction of a sharp lad, who acts as assistant and monitor; the second group is mastering the mysteries of an elementary reading-book; the third is boldly attacking simple arithmetic. Here centres the light and

leading and the good influences of the village; here on Sundays the Gospel is preached, and Christ proclaimed as the Saviour and Lord of all.

Not very many steps from the school, and as it were in protest against change and reform in any way, stands a low hut thickly strewn inside and out with the refuse of sugar-cane. It is a native sugar-cane press and spirit-still, and truly nothing could be simpler in construction, or more effectual in answering its purpose. The press is merely a heavy wood roller placed at right angles upon a flattened tree trunk, the latter having a groove in it. The cane is put between the roller and the tree trunk, and the roller is worked to and fro upon it, and by its weight presses out the juice, which runs into the groove. The juice is boiled and distilled into a cask by means of an old gun-barrel, or iron piping, or even a bamboo reed. Three such presses and stills are to be seen in our walk through the village. In addition, casks of Mauritius rum are found in some of the houses. The spirit in these is much stronger and more fiery than the native product, and so is all the more desired by the poor ignorant people. A few cents will purchase a bottleful of this spirit. No wonder then at the drunkenness which prevails among the Taifasy and other coast tribes.

We notice cattle-pens placed here and there among the houses. They add greatly to the general dirt and filth, but it is difficult to say how this could be remedied. Rice and cattle form the wealth of the people, and there are always marauders about at night, who would "lift" the cattle, were they not close to the dwelling-houses. The country is infested by wandering vagabond tribes, who frequently steal cattle even during the day, and not seldom carry away into slavery women, and children whom they waylay in lonely places. Then there is nothing for it but to try and effect a ransom. Often, alas! they are never more heard of, being killed as incumbrances, or sold right away out west into hopeless bondage.

We look around in vain for a market or market-place. This quite essential feature of Imèrina life is entirely absent among the Taifasy and adjacent tribes. They have no markets and no market-days. If you want a fowl, for instance, you must send round from door to door until you find some one willing to part with one. This old-world method vastly increases the trouble and haggling over purchases. A few, however, who are wise in their generation, trade in a petty way, and at their houses you may buy cloth, rice, salt, and the like. They also pay irregular visits to Fàrafangàna, and are willing to buy at the traders' stores anything on commission. At Farafangana almost everything a native can require, from a cooking-pot to a needle, can be obtained. But where is the Taifasy who will trust his fellow so far? He gets out his canoe, descends the river, and buys first-hand what he needs, and trusts no one, lest he should be cheated! The native trader preys on the thoughtless, the spendthrift, and the reckless.

A little further on we reach the river. A number of stakes enclose a space of water in the tiny creek. Within this enclosure, women are fetching water in their bamboo water-carriers, others are washing clothes, and children disport themselves like porpoises, as full of fun as any children can be. The stakes prevent crocodiles from seizing any

children or adults while in the water. The river is infested by these creatures, and you would not remain long in the village without hearing of children being carried off by them. Even adults are occasionally seized and eaten by these monsters.

Canoes ply up and down and across the river, and on a pleasant day, when the sun is not hot, nothing is more enjoyable than a river journey. When the novelty wears away, however, it becomes irksome, as the slightest movement almost upsets the canoe, so liable is it to capsize.

Again approaching the village, we come to the outskirts. Here rice-fields are planted wherever there is any clear space, and on rice cultivation men and women and even children expend much time and energy. Away in the distance hills can be seen stretching up to the clouds. Nearer at hand other villages are visible from the mound on which we stand. Thousands of traveller's-trees closely set together gladden the sight, other trees and palms wave their fronds gaily in the breeze. Huge arums grace the river banks, and with other vegetation give tropical luxuriance and life to the beauty of the scene.

The cemetery is in a wood some distance from the village. A low shed within a stockade is all that can be seen, unless you approach very near. The bodies are placed under the shed, those of the men on one side, those of the women on the other. Simply wrapped in *lamba*, the dead are put upon the mouldering remains of those buried before, and thus left to crumble away in their turn.

The sun is now high up in the heavens, and we must return to our hut for tiffin and siesta. Afterwards there is opportunity for taking stock of the men, women, and children moving about. The men are above medium height, well-built, swarthy, with intelligent features. They are clad in loin-cloth, with a dirty *lamba* thrown over the shoulder and around the body. Their hair is generally cut short, and most of them wear a grass skull-cap. The women are clad in grass mats, shaped like large sacks open at each end. Into this they wriggle, hitch it round the body with a string, and this, with a narrow strip of woven grass, barely covering the breasts, completes their costume. Others, who are in better worldly circumstances, wear garments of *rofia* fibre, and a very few may be seen having on a passably clean cotton *lamba*. But the children run about in adamic simplicity, and evidently enjoy their freedom from clothes in this damp, hot climate. The boys of a larger growth wear the loin-cloth merely, and the girls have a smaller edition of their mother's mat around them. The children strike us by their intelligent looks and quick bright ways, not always seen in Malagasy childhood. The women trim and comb their hair, and delight in coiffures which would be the despair of a Paris hairdresser. Coiled, plaited, braided in many styles, some very becoming, the hairdressing is looked upon as the chef-d'œuvre of Taifasy, as indeed of all Malagasy, women.

Various are the employments of the people. Generally speaking, the men prepare the rice-grounds, and the women plant the seed and look after it, and reap the rice when ripe, and store it. Many men go in search of work, and hire themselves to the various foreigners on the coast. Numbers are engaged in petty buying and selling, while every village has its complement of aged and infirm inhabitants. There are

others too who are idle, and are parasites and unlucky incumbrances to their clan and kindred. The work of the house, cooking, weaving mats, making sacks, etc., is done by the women.

A merry group of lads and lasses at play leads us to inquire into the amusements of the young. The boys play at fishing, or they construct little canoes, and boldly venture in them, rowing with their hands on the narrow streams which run among the rice-fields. Smaller children make tiny boats fitted with sails, and clap their hands with glee when the little craft float upon the water. The children of a village will unite and have a pic-nic lasting for a couple of days in some favourite spot. They carry food, flutes, and a drum, and elect one from their number to lead their sports. Big boys imitate bull-fighting. Arming themselves with horn-shaped pieces of wood, and holding them to the forehead, they rush at each other, and serious injury is sometimes thus occasioned. Singing contests are not uncommon, and are not unpleasant to the ear, though the monotony of words and music soon tires one. Stick-throwing, kicking with the heel, kite-flying, bird-keeping, playing at rice cultivation, nursing babies, real or imaginary, are also some of their amusements.

It is now getting dusk, and while the dinner is being cooked, let us join ourselves to a group of men squatting under and around the rice-houses. A Hova has arrived, and is reading a government notice, supplementing it with comments to his own liking. An arrest for debt is threatened, and the debtor must be given up by his people. A man has come in to-day from Tamatave, that wonderful place, and is astonishing his auditors by relating the marvels he has seen, the high wages that are to be had there, and the sayings and doings of the foreigners who swarm in that emporium of commerce and civilization. A tribe out west has threatened reprisals for some injury committed a while ago. Forthwith night guards are appointed, spies are sent to learn the movements of the enemy, and other measures of defence are discussed and arranged. A slave has run away from his master and is supposed to be in hiding here, and a messenger has come to find him. So-and-so has quarrelled with his wife, both being tipsy at the time, and the poor woman has been instantly divorced by the angry husband. So-and-so, again, has broken one of the tribal rules, and must either be heavily fined or banished. And is there not always the condition of the rice-fields, and the current price of rice, cloth, and salt to be discussed, apart from the ordinary small talk which gladdens men and women everywhere?

But now dinner is ready, and we are tired and must be up betimes to-morrow morning, if we are to proceed on our journey and reach the next stopping-place, a good twenty miles away. So, good night!

CHARLES COLLINS.

NOTES ON SOME OF THE MADAGASCAR ROLLERS.

(Concluded from ANNUAL XIX.)

FAMILY CORACIIDÆ:—SUBFAMILY CORACIINÆ.

3.—**Scaly Pitta-Roller** (*Brachypteracias squamiger*, Lafr.).—The present species, which appears to be one of the rarest of all the Rollers inhabiting Madagascar, was first obtained in 1834 by Goudot on the bank of the Tsimanona river, south of the Point Larrée, and was described in 1838 by Lafresnaye, the type being in the Paris Museum.

It inhabits, according to Grandidier, the vast forests on the eastern side of Madagascar, especially between Tamatave and Sambáva, and in its habits is similar to its congeners.

The natives informed Crossley that this species is nocturnal in its habits but this is denied by Grandidier, who says that they meant that it is extremely rare. It is, he adds, by no means shy. Respecting its general habits, I find nothing further on record, and its mode of nidification and its eggs appear to be as yet unknown.

GENUS ATELORNIS, Pucheran.—The present genus contains two, or possibly three, species, which are restricted to Madagascar. In habits they are terrestrial and are but seldom seen on the wing, and their flight is feeble. They feed on insects and small reptiles. They nest in holes in the ground, or between the roots of large trees, and deposit creamy-white eggs, or white slightly spotted at the smaller end.

4.—**Blue-headed Ground-Roller** (*Atelornis pittoides*, Lafr.).—Like the other aberrant Rollers to which it is allied, the present species is confined to Madagascar, where it was first discovered in 1834 by Bernier, and described by Lafresnaye the same year, the type being in the Paris Museum.

It inhabits the large forests on the eastern side of Madagascar, at least from the Mangôro to Sambáva, and appears to be tolerably common. Messrs. Roch and Newton, who met with it in the forest of Alamazaotra (which is, the latter gentleman remarks, the only locality from which he heard of it), write (*l.c.*): "It was getting dark as we approached Analamazaotra on our journey up, when we saw several of these birds run across the path; one of them was shot by Dr. Roch. On our return we saw one again, but it was only in the dusk of the evening. It is singular that such a brightly-coloured species should only appear at nightfall, as it would seem alone to do. They have a very peculiar manner of jerking their tails when they alight on a branch. As far as we observed, they always kept very near the ground, and are probably ground-feeders."

The Rev. J. Wills, from whom I received several specimens of this Roller, tells me that it is seldom seen except in the dusk of the evening, and appears crepuscular in its habits and essentially a ground-frequenting species. He tells me also that it nests in holes in the ground, but that he has not obtained its eggs. Grandidier also states that it nests in the ground or between the roots of large trees, and from this habit the belief is derived that it hibernates, for he says "the natives assert that these birds hibernate during the dry season, like the Trândraka (*Centetes*), in holes dug in the ground." He describes the egg as being "white with a few small spots at the smaller end, and large for the size of the bird, measuring 37 by 27 millimetres; but according to Bartlett (*P.Z.S.* 1879, p. 770), "the eggs are creamy white, with a smooth surface, but not so highly polished as the eggs of *Coracias garrulus*. Grandidier says that the Betsimisáraka call this bird, according to locality, *Roafelo* ('Two-three'), *Reniangaly* ('Mother of Nectarineas'), or

Vorontsikinana ('Rich-plumaged bird') [rather, the 'Girdled-bird,' probably from the rich blue-coloured band round the breast].

In a letter just received from the Rev. J. Wills, who writes from Antananarivo, he sends me the following note:—"The cry of *A. pittoides* is indicated by its native name *Sakôka*. The *sa* is scarcely sounded, and the final *a* is almost silent; the *o* is lengthened out and becomes *kôôk*; and the call is loud, almost like a man's shout. Natives who have dug out the nests inform me that the nest is at the end of a hole extending in the ground to about the length of a man's arm. The hole is made in a bank of soft earth, very round and smooth, and too small to admit a man's hand. They are all about the same size, and the loose earth found below the entrance shows that the bird excavates its own nest-hole, and does not make use of one already bored. The nest-hole and nest are clean, and not like those of the Kingfisher. The hole is enlarged at the end and basin-shaped, and the eggs, which are pure white, are about equal in size to those of a Quail and, two in number, are deposited on a little dry grass. One of my friends, however, tells me that he found two eggs that were spotted with brown, but he was uncertain whether the nest was that of *A. pittoides* or *A. crossleyi*. The nest of this species has only one hole for ingress and egress."

5.—*Crossley's Ground-Roller* (*Atelornis crossleyi*, Sharpe).—But little is known respecting the present species of Roller. Mr. Crossley was the first to obtain it in Eastern Madagascar, and Grandidier states (*l.c.*) that whereas its congeners inhabit the forests on the northern portion of the eastern slopes of the large mountain range in Madagascar, Crossley's Roller is only found in the southern portion. I may add that the two specimens in my collection were obtained by the Rev. J. Wills in the forest east of Imerina, Central Madagascar—that is, the forest furthest from the east coast, and bordering the high tableland or plateau of Imerina, which is the home of the Hova.

Respecting the habits of this Roller I find nothing on record, but Mr. Wills informs me that it is a forest-haunting species, and in its general habits resembles *A. pittoides*, and, like that species, is usually met with on the ground. It is said to nest in holes in the ground. In a letter just received, Mr. Wills adds that his native collector did not appear to have clearly distinguished the present species and *A. pittoides*, and said that the cry and habits of the two species are alike. One native who brought him a specimen of *A. Crossleyi* told him that, when obtained, the bird was flying amongst the trees, whereas *A. pittoides* rarely leaves the ground. The forest tribes, he adds, call the present species *Vorôn-trandraka* or 'Hedgehog-bird,' probably from its hibernating habits, but he could not ascertain whether they apply the same name to *A. pittoides*.

With regard to the statement that this species and *A. pittoides* hibernate, Mr. Wills writes to me as follows:—"During the winter months (May, June, July, and August) these two Rollers are not seen, and the natives affirm that they then remain in their holes, but I can find no one who has actually seen them there. In the spring they reappear and are often seen until the winter again sets in. They may be seen flying about at all hours of the day, and not only, as I before told you, towards the evening." This information is most interesting and reminds one of the now exploded, but once so prevalent, idea that the swallows did not migrate, but hibernated; and it will be most important to have the matter thoroughly investigated, which Mr. Wills is now engaged in doing, and I trust ere long to have further information from him on the subject.

Rather more than a year ago Mr. Wills gave me several Rollers he had collected in Madagascar, and amongst them were three which were stated to belong to the present species, two adult birds and one young bird. On carefully comparing them, the two adults were found to be without doubt referable to *Atelornis crossleyi*, and the young bird also at the first

glance appeared to belong to the same species, but all the new feathers appearing on the crown, instead of being rufescent, were rich cobalt-blue. I at once examined every specimen of *A. crossleyi* I could find, and in every case they had the crown rufous-bay, without any trace of blue, and the only inference at which I could arrive was that another undescribed species exists in Madagascar, which, when adult, has the crown rich cobalt-blue. On naming the matter to the Hon. Walter Rothschild, he told me that some time ago he purchased of a dealer an adult specimen of a Roller said to be *A. crossleyi*, with which in fact it agreed, except that it had the crown rich cobalt-blue. This specimen is, however, not forthcoming, and Mr Rothschild informs me that he has lost it. My specimen, which was obtained by Mr. Wills in Imerina, Central Madagascar, resembles *A. crossleyi*, but is much duller in tint of plumage, the rich bay colour being replaced by dull rufescent ochraceous, the black and white patch on the throat is wanting, but there are one or two new feathers which are nearly white, showing that it would probably be assumed with the adult dress; the upper parts are duller than in *A. crossleyi*, and the crown is dull rufous-brown varied with cobalt-blue, the new feathers being of this latter colour; the bluish-white spot on the wing-coverts is apparent, though but slightly developed. Total length about 9 inches, culmen 1. 15, wing 3. 55, tail 4.6, tarsus 1. 65.

It is rather premature to describe a new species from a single immature specimen, but I think it advisable to propose the provisional name of *Atelornis cæruleiceps*, should further research prove it to be a valid one, which I feel convinced will be the case. I wrote to Mr. Wills some time ago, asking him to make enquiries among the natives about this bird, and in a letter just to hand he replies as follows: "I cannot yet throw any light on the blue-headed *crossleyi*, but I am assured by the natives that there is another *Sakôka* smaller than *A. crossleyi*, but I have not yet seen a specimen. I hope, however, to get one next spring."

SUBFAMILY LEPTOSOMIDÆ.

GENUS LEPTOSOMUS, Vieill.—The present subfamily and genus contain only two very closely-allied species, one of which inhabits Madagascar, and the other the adjacent island of Great Comoro. In their habits they are arboreal, therein resembling the true Rollers. Their flight is strong and tolerably swift; and, like members of the genus *Coracias*, they frequently, during the pairing season, execute aerial evolutions on the wing. They feed on insects and small reptiles, and nest in the hollows of trees, depositing white eggs.

6.—*Anomalous Cuckoo-Roller (Leptosomus discolor, Herm.)*.—The present species inhabits Madagascar, where it is much commoner than the other aberrant Rollers which are found in that island, and it also occurs in Mayotte and the island of Anjuan, but is replaced in Grand Comoro by a closely-allied though specifically distinct form. It has, owing to some strange error, been stated (Franklin, *P.Z.S.* 1830, p. 126) to have occurred in India and in the Deccan (Sykes, *P.Z.S.* 1832, p. 97); but it is hardly necessary to say that this is not correct. There is but very little on record respecting the habits of this Roller, and the best, in fact, the only detailed, account is that given by Grandidier, who writes (*l.c.*) as follows: "The Cuckoo Rollers are common birds everywhere in Madagascar, at least where there is wood. It is not found in the arid mountains of the interior, but one of us saw one sailing below the top of Antôgodrahôja. They live in small family parties of ten or a dozen individuals, which consist always of more males than females. The young birds remain long with the parents. They frequently fly during the day at great altitudes, soaring like birds-of-prey in circles above the tree-tops. But during the pairing season they exhibit the greatest excitement, when they rise from time to time obliquely in the air with violent flaps of their wings, which they

then half close and allow themselves to descend to the tree tops, to again at once ascend, and thus they continue for some time, and then glide, uttering at intervals a mournful and plaintive cry, *dréo, dréo*, at the same time puffing out their throats and erecting the feathers on their heads. These Rollers are more especially to be met with on the skirts of the forests and on the bush-covered plains, where they hunt after reptiles, insects, grasshoppers, and especially caterpillars, which form their food. They are not shy, and are easily shot when perched on a bough. Towards each other they are sociable, and should one be shot down, his companions flutter round the hunter as if to rescue their friend, hovering at a short distance from the group, or perching on a tree close by, so that one can, if one wishes to do so, kill one after the other, almost to the last, without their being scared away by the reports of the gun. When wounded they puff out the skin of the head, erect their feathers, and try to defend themselves by vigorous strokes of the bill, and then assume a defiant and wild appearance.

They nest in holes in trees, and it seems that their eggs are pure white. In the west the Cuckoo-Roller is called *Kirèmbô* (that is, 'the one who soars'), and in the east *Vòrondréo* (lit. 'the *reo*-bird').

"The Sakalava, impressed by the mournful and languishing song of this bird, prepare a love-potion from certain parts of its body, such as the eye and the wing-feathers. We, on several occasions, lost some fine skins of this bird on account of the carriers having taken some of the feathers, without permission, for this purpose."

In a letter just received, the Rev. J. Wills sends me the following note respecting this species: "The native name indicates its call, *vòrona* (bird), *dréo*, this latter word being the cry of the bird as it flies high above the trees, circling about, the *e* having the sound of the French *e*. The cry is a loud and long-continued *ré-oo, ré-oo, ré-oo*. A native, who tells me he has taken the eggs and young from the nest, affirms that the nest was on the ground under an overhanging bank, being just a little dried grass loosely spread. The eggs are three in number, but he says one is always addled, and he added that these birds feed their young on grasshoppers, lizards, chameleons, etc."

Messrs. Roch and E. Newton remark (*Ibis*, 1863, p. 166) that "it has a peculiar habit of playing in the air just above the forest for some time over the same place, ascending almost perpendicularly, as it were by a jump, to a great height, and descending again in a curve nearly to the tops of the trees, by almost closing its wings, at the same time uttering a whistle so like an Eagle's that it was for a long time doubted by us whether the bird that performed this wonderful freak was not a Raptorial. However, after having several times watched it with our glasses, we satisfied ourselves that it was this species. Whilst one bird was thus playing, another would frequently answer its cry from a tree hard by."

H. E. DRESSER, F.L.S., F.Z.S.

Extracted from *A Monograph of the Coraciidae, or Family of the Rollers*; 1893, pp. 54, 55, 58—105.

POSTSCRIPT.—Since the publication of Mr. Dresser's monograph on the Rollers, from which the above extracts have been taken, another species of this family of birds has been discovered as living in Madagascar, at least the unique specimen from which this new species is described has lately been discovered among a collection of skins sent from this country to the Hon. Walter Rothschild. It is probably a rare bird, at any rate it seems unknown, so far as our present information goes, in those parts of the great eastern forest where other species of Roller have been obtained; and native hunters in those regions do not appear to know it. Its habitat is therefore still unknown.

The coloured lithograph of this new species as given in Mr. Rothschild's periodical *Novitates Zoologicae*, vol. iii. 1896, and described in the number

of that magazine for Dec. 1895, shows a bird much resembling Crossley's Ground-Roller (see p. 466, *ante*), coloured rufous-brown on the upper parts of head and neck, back, rump, and tail, but with the under surface white, except a dark-brown band across the chest. But its most remarkable feature is its extremely long tail, which is two-thirds of the total length of the bird. But the following particulars given by Mr. Rothschild will be better than any further remarks of my own.—J.S. (ED.)

7.—Long-tailed Roller (*Uratelornis chimaera*), sp. nov. et gen. nov.—Roths. "I was obliged to create a new genus for this most remarkable bird, because it differs in two important points from *Atelornis*, to which it is, on the whole, closely allied. For while *Atelornis crossleyi*, with a total length of about 9½ inches, has a tail only 4½ inches long, my new bird, with a length of 18 inches, has a tail fully 12 inches long. In *A. pittoides* the tail is still shorter in proportion. The second important difference is the great length of the tarsus, which is much longer than in *A. crossleyi*, while the toes are even shorter. A third difference is that the nostrils are more exposed. In other respects there are no structural distinctions from *Atelornis crossleyi*."—W.R.



BY-GONE ORNAMENTATION AND DRESS

AMONG THE HOVA MALAGASY.

IN one of the early numbers of the ANNUAL* surprise is expressed at "the almost total absence of ornamental art among the Hova." To this statement another is added in the following number to show that, while correct as a general statement, isolated examples are met with which seem to show that a certain amount of artistic feeling is not altogether wanting.†

From enquiries recently made, and confirmed by statements in the *History of Madagascar*, which was published in 1838, the Hova, if they were not leaders among the Malayo-Polynesian races in their appreciation of personal ornaments, were apparently not far behind any of them.

The absence of native ornament among the Hova has been a matter for surprise to many residents in Imèrina. Very few ornaments are seen, whereas among the Sàkalàva, the Sihànaka, and the Bétsimisàraka, and in fact, all the other tribes, most of their ornaments are ostentatiously displayed. This gave rise to the conclusion, which is now seen to be erroneous, that whatever ornaments the Hova possessed were obtained from the outlying tribes. Such was really the case with the charms and the idols, but I am convinced, after many enquiries, that very many of the ornaments which the outlying tribes possess have been

* ANNUAL No. II. p. 193. † No. III. p. 332.

† Several specimens of these old ornaments may be seen in the portrait of a Hova governor given on p. 180 of the recently published *Story of the L.M.S.*, by Rev. C. Silvester Horne, M.A. And this again is a reproduction (in black and white) of a coloured engraving forming the frontispiece of vol. i. of Ellis's *History of Madagascar*.

obtained either from the Hova, or from the Arabs, from whom the Hova undoubtedly have borrowed many ideas, especially in divination, division of time, etc. When the Hova adopted Christianity, and saw the uselessness of such personal display, and—a more powerful motive still, perhaps—wanted the money for active business purposes, they sold many of their silver chains to the outlying tribes.

The following quotations are taken from the *History of Madagascar*, written by the Rev. W. Ellis. On page 152, vol. i., Mr. Ellis says: "Silver chains of native manufacture are also given as presents;" on page 153 he says: "The head of the mother is decorated, during the (circumcision) ceremonial with silver chains;" on page 180: "Gold and silver chains and trinkets 'without tale'....." "The females also appear in their rich and many-coloured dresses." Again, on pages 179, 181: "The sovereign is in the habit of lending to his personal friends, or chieftains of high rank and station, on these occasions, silver chains of different size and value." Dollars strung together by means of a strong line passed through a hole on the opposite edges, are worn like bands or fillets on the heads of the females, and over the shoulders of the men. This latter ornament is used as an indication of the wealth of the wearers, or of their families." Also on page 283: "The Hova adorn themselves with large silver rings on the fore-arm, and round the wrists. Besides the rings and chains of silver, large rings of cotton or hemp covered with small beads, arranged after various patterns, are worn by both sexes on the arms above the elbows, or as bracelets on the wrists an article of silver, from one to four inches in length, hollow, and slightly curved at the point, bearing some resemblance to the crocodile's tooth (the name by which it is called), is in general use. Sometimes these silver teeth are fastened, with the point upwards, to a fillet round the head. Necklaces of beads are frequently used; and suspended from these, on a silver chain, many wear a breastplate of silver." On page 314 he refers to the making of these chains; thus: "The native goldsmiths and silversmiths exhibit considerable ingenuity in the manufacture of rings, chains, and various ornaments of the precious metals, which are obtained from foreign traders. The wire for their chains, both gold and silver, which are exceedingly fine, is made by first melting the metal, beating it into long thin rods, and drawing it through holes in a plate of iron by a process similar to that employed in drawing wire of brass or iron."

In the *Malagasy Kabàry*, which is a collection of royal proclamations, dating from perhaps 1790, mention is early made of '*vàko-dràzana*,' or heirlooms, or silver rings of the ancients. As that reference was made in 1810,* and referred to what were then called the "silver rings of the ancients," we must even go back to a period long before King Ralàmbo, in order to discover the time when these chains, etc., were first introduced. From the account of circumcision given on p. 5 in the book of *Malagasy Customs*, collected by the Rev. W. E. Cousins of the L.M.S., we see at once what were some of the earliest articles of personal ornamentation. But unless the *sàtro-dàva* (long-hats) were made of a different kind of material to that of which the few remaining specimens were made, this account cannot carry us back to a period earlier than that

* See ANNUAL No. IX., Vol. III., p. 48.

when the people had come under foreign influence. It is most difficult to fix a period for the beginning of what is now nothing more than a by-gone Hova ornamentation.

The Malagasy appear to have used the following words to distinguish the different degrees and modes of ornament then in vogue :—

Miràvaka. This was used to designate a dancer who had been adorned with a profusion of different ornaments, and upon whose head many flowers and beads had been wreathed together.

Miràratra, which seems to have been limited to designate the ornaments worn by the 'Master of the Ceremonies.'

Mirènty. In a general sense this word was used to denote any kind of extravagant dress; but when specialized it referred to a person whose whole face had been besmeared with a brownish fluid.

Milèntina. This was used similarly to the last mentioned, but instead of the whole face being besmeared, only parts were daubed with the paint.

Miràmarama. This was the strongest expression, and denoted a person who foppishly adorned himself with garments of such extravagant stripes and colours as to immediately attract attention.

The different kinds of ornaments worn by the natives can be classified into three periods; viz.—The Native, the Intermediate, and the Foreign, the last of which began with the reign of King Radàma I. (1810-1828). A few specimens of each are still to be seen, some of which are possessed by the writer. By the Intermediate period is meant the stage in which the natives obtained silver and gold from foreigners and made them up into articles of ornamentation, etc., according to native taste. By the Foreign period is meant the stage during which the natives obtained European and other goods according to Malagasy patterns.

To the Native period belong that class of ornaments which were obtained from the teeth and tusks of wild beasts, native garments, and the peculiar modes of plaiting the hair. Of the first class there were, apparently, only two kinds, namely, the tusks of the wild-boar, and the teeth of the crocodile. The Malagasy have a proverb which says: "No animal exceeds the crocodile," from which it is easy to understand why their first ornaments and charms were crocodile's teeth. These were worn on the shoulders, in fillets around the head, and in the form of belts roughly made and worn round the waist. Wild-boar tusks were also worn in the same manner. A country noble of high rank gave me a boar's tusk which he said had been in his family for many generations, and which had been worn by his ancestors by being suspended from the shoulders. Imitations of crocodile's teeth were the favourite patterns even in introduced ornaments.

From all accounts the various styles of plaiting the hair were innumerable. Men seem to have fully appreciated this mode of ornament as well as the women, so much so that King Andrianampònimèrina is said to have had a special style for himself, which was called *Ny bóko andampona*, i.e. 'The knob on the top of the head,' as all his hair was gathered together into one big plait on the crown of the head. Another famous mode, called *sàlo-bita*, consisted of plaiting the hair into an equal number of very fine plaits, which hung down in an even row. The peculiarity of this mode, however, consisted in the fact that on each side of the head there were formed, in front of the

an equal number of plaits, which were plaited finer than the rest, and then worked into a hollow square, which was then sewn so as to compel them to keep that shape. The special feature of this plait consisted in the addition of a row of coral beads, sewn along each of the exterior angles, if the person was of the *andriana*, or noble class; whereas among the Hova, or commoners, it was the custom to sew on small silver chains or coins. The time spent in plaiting must have been very considerable. And, if the Malagasy proverbs can be trusted, no small amount of heart-burning was caused thereby. The proverb which says: "*Milomany randra-manendrika ny sasany; fa ny volon-doha tsy mba mitovy*," literally, "Crying for plaits which beautify others; for everyone's hair is not equally long," reveals human nature from a Malagasy point of view. Of the many modes of plaiting the hair it is unnecessary to speak. The art of effectively utilizing hair other than their own is not unknown to some of the Malagasy women.

There is a special form of plaiting the hair of the dead. As soon as a woman dies it is the duty of the relatives to plait her hair, and the same style is followed among all classes. It takes the form of an equal number of plaits, which are plaited on each side of the head. The plaits vary from four to ten, in even numbers, as the numbers three, five, seven, nine, and twelve are reserved for the living.

As the Malagasy ungrudgingly spent their time upon plaiting the hair, so they freely lavished their money and energy upon their different richly-coloured garments, of which there were not a few. The more important only will be mentioned. There were five different silk garments, of which the *vàlo-hàraka*, i.e. 'eight-healds,' must be given the first place. It was of coloured silk, worked with floral designs, and is said to have cost from fifty dollars upwards. Another kind of silk garment was an ornamental loin-cloth. It was made of black silk, fringed with leaden beads on the two ends, back and front, which hung from the loins. Upon the top of these beads two small bands of unwoven red silk, from three to four inches in diameter, were fastened round the waist. Another silk cloth, upon which designs were worked, was called *akòlofàhana*. The last of the silk garments to be mentioned is the noted holiday attire called *akànjo tsy an-tsàha*, i.e. 'not used except in the field.' The name arose from the custom of the Malagasy, who always meet in the open on public occasions, as most of the houses are too dirty for any exhibition of clean clothes, ornaments, etc. This garment was of black silk, striped all over with green silk, and round the loins the band of red silk already referred to was tied. At the bottom of this shirt there was a border of some four to six inches broad of leaden beads, which was fancifully worked all round the garment. These shirts only cost from a sovereign upwards, but the large *lamba*, a big oblong cloth of the same pattern, cost about four pounds. This garment does not seem to have been used much by the living after the natives came into contact with Europeans, but was used for wrapping up the dead.

The next garment of importance was the *lamba sàrika*, which was made from the leaves of the banana. It was of a brown colour, with a red border woven in silk. Formerly these *lamba* were very expensive, but lately they have been sold for about a dollar. The following

proverb shows the native estimate of the garment : "*Raha zazavavy tsy endrehin-damba sarika : tsy adidiko, tsy adidin-drainy,*" i.e. "If it is a maiden not adorned in the *sàrika* garment, (she) is neither my care nor her father's," in other words, not worth attention. The *lamba kolòsy* came next in importance. This was a white cotton garment spun by the women, to the edges of which were woven various-coloured borders. From four to twelve shillings was the price thereof. The last garments of this period are the *dímý sòratra*, i.e. 'five markings', which was a cotton garment with five different-coloured stripes of silk for its border ; and the *tòka-tsísina*, i.e. 'one stripe,' so named from its one stripe of silk on the border.

The Intermediate period, however, possesses the greatest interest. As soon as the natives obtained silver and gold they attempted to make a large number of articles, hence the larger proportion of their ornaments, especially silver ornaments, coins, etc., belong to this period. It is necessary to remember that all the silver the natives possess has been introduced from abroad.

The *làmba zaitra*, i.e. 'sewn garment,' was made with a silk or satin centre, which was probably red, to which were sewn silk borders of a different colour, the whole garment being lined with very fine calico and involving an outlay of from eighty to one hundred dollars. The *làmban-drain-jàza*, i.e. 'the garment of the father of the child,' was used in the circumcision ceremony, and was of red or green silk, with fringes. It was about four yards long, with raised sewn borders or figures. These were made up with silk thread, and sometimes of gold brocade, called by the native *ambòrodao*, a corruption of the French *broderie*. One of these garments was rolled round each of the arms of the father of the child about to be circumcised. The *lamba miakòiso*, i.e. 'garment with a border added,' was a large fine calico cloth, to which were added two borders, each of which was made up of five long stripes of coloured woollen cloth, about two yards long. The centre stripe was nearly always red, and the two stripes on each side were either black or, more usually, green. Each stripe was about two inches wide, and was marked off, together with the edges, with piping of white calico. Sometimes silk or satin took the place of the woollen cloth.

The Hova also had three kinds of ornamental hats which belong to this period, each of which was the cause of no small amount of heart-burning in by-gone days. The *hamàma*, or turban, was obtained from the Arabs, to whom the Malagasy probably owe nearly all their knowledge of personal ornaments. The *fòn' òmby mènà*, i.e. 'red heart of an ox,' was so called from its conical shape and resemblance to a bullock's heart. It was made of red woollen cloth. The *sàtro-dàva*, i.e. 'long hat,' had rather a stately appearance. It was also made of red woollen cloth, for red is the favourite colour of the Malagasy. The base of the hat consists of a piece of Malagasy mat, about twelve inches square, covered with red woollen cloth, with a unique pattern of ornamental facing. From this there falls down the back, as part of the hat, a long piece of the same material in the shape of an isosceles triangle, which reaches in some hats to the legs. To this there is added a big tassel of various-coloured ribbons, which almost reaches

the ground. The whole of this triangular piece is adorned with various ornamental facings in gold braid. These hats must have been expensive when they were first introduced.

The coins and silver ornaments of the Hova claim our greatest interest. Most, if not all, of the coins formerly obtained by the natives appear to have been Spanish.* These were used instead of bar-silver to make their various ornaments, of which there were many kinds. The size of these silver ornaments was always an indication of the wealth and position of the owners.

The silver *hàba* was a light hollow silver ring, about half an inch in thickness. Sometimes it was simply a plain ring, but frequently there was an attempt at design by indenting either a few transverse circles round the ring, or by forming a series of two isosceles triangles with base to base, so that the apex of the one pair of triangles touches the apex of another pair. The bead *haba* was a ring made of cotton, or some similar material, upon which were transversely sewn very small coloured beads to make up the above triangular patterns, which, when finished, presented a very pretty appearance. The time spent in making the bead *haba* must have been very great, and the strain upon the eyes must have been intense. They were worn on the arm just above the muscle.

The *hòsina* was a plain hollow silver ring, the shape of which somewhat resembled a capital C, but not quite so curved. It was about half an inch in diameter and about three inches in length; and by means of the opening it could easily be fastened upon the wrist. A small *hosina* weighed about twice as much as a five-shilling piece, but the large ones weighed very much more.

The *màsombôla*, i.e. 'eye of money,' was simply an ordinary small link of silver. If a person was poor, a few were joined together, and they were then worn as an ornament on the wrist; but the richer Hova made them up into long chains and wore them across the shoulders.

The *òmbelànivôla*, or 'silver-bull,' is a very rough silver imitation of the humped ox, so common in Madagascar. They are very small figures indeed, from half to three quarters of an inch long, and it takes from twelve to twenty to make up the weight of an English four-shilling-piepe. They are generally tied together with a small silver hatchet and the *fanjaibôla*, or 'silver needle,' by means of wire passed through a small hole drilled through them.

The *rôjovôla* and *tongalika* were long but very small silver chains, which resemble the long silver watch chains formerly worn by ladies in England round the neck. In the circumcision ceremony these were tied round a special kind of pumpkin used in the ceremony, by which means it was dragged up a running stream of water. Sometimes these chains were tied round the necks of the charms. The *rojo* and the *ombelahivôla* seem to be the only two silver ornaments ever used in connection with charms. The *tongalika* chains are not always so small; I have seen them as big round as the index finger.

* At the time of my first coming to Madagascar (1863), and for long afterwards, the Spanish 'pillar dollar' was the dollar mostly in circulation, and five-franc-pieces were not much liked; Mexican, Bolivian, Peruvian, and other South American dollars were preferred by the people.—J.S. (E.D.)

Of ear-rings there seems to have been a very great variety indeed, not only in silver, but in gold and coral, and in imitation diamonds.

The *volalàhy*, i.e. 'money (befitting a) man,' was the only decoration given by the Malagasy for political reasons. It was given by the Hova to the Sakalava, together with the robe called *tsi-màro-avàratra*, i.e. 'not many to the north,' and the hat already referred to, the *satroka fon' omby*, on condition that they undertook not to point a gun at Ambôhimànga, a sacred city and the ancient capital, and also to similarly respect Antanànarivo. In addition, the Sakalava had to give up the guns they possessed.

Apparently these *volalahy* were very similar to the *sàmpilàhy*, i.e. 'suspended (from the shoulders of a) man,' of which many may still be seen in the country places. The links are pure silver and are generally about an inch in diameter, but vary very considerably in thickness. They very much resemble a massive dog-chain. A light chain weighs about eight ounces (avoirdupois), a medium chain weighs sixteen ounces, whereas the heaviest ones are said to weigh from thirty-two ounces upwards. To a European it seems a great waste of money to melt down some fifty to two hundred dollars in order to make a chain, but by the natives it was not so regarded. These chains were taken as evidences of the wealth and position of the owners, and hence, as soon as a Hova had bought enough slaves, he invested his money in one of these heirlooms. Many, however, were buried with the owners. In the time of King Andrianampoinimerina these chains were sold, in some cases, for a little more than their weight in silver; others, however, of better workmanship obtained a price equal to twice their weight in dollars. Recently many have been melted down to make other ornaments, and so the price has fallen. Generally these chains were fastened together by means of a neat hook, others were fastened round the waist, others again are said to have been fastened about the legs. An old native recently died who told the story of a very high officer who visited Mr. Griffiths, dressed in all his ornaments. Mr. Griffiths, seeing these chains round the man's leg, was rather taken aback, and so asked him in Malagasy: "*Inona moa no helokao, fa migadra hianao?*" i.e. "What is your guilt, that you are in chains?" That these chains are no recent introduction is seen from the Malagasy proverb: "*Isika toy ny vako-drazana: izay mihata-maso aloha vелеzina*," i.e. "We are like the silver heirlooms of the ancients: the links which separate first are beaten together." The silver chains, however, were not the only heirlooms. There were others, such as the *fèhin-tànana* or bracelet; the *fèhin-dôha* or head-gear; and the *bètaly* or belt.

There were two kinds of silver bracelets. One very much resembled, though somewhat larger in pattern, the ordinary English watch-chain with twisted links, the final link of which, at one end, was twisted into the shape of an imperfect eight, so as to form a rude fastening. The second kind of bracelet is more interesting, as it was made up of a small silver chain of various patterns, linked on to a large silver coin called *kizo*. These coins are very difficult to get. They are somewhat larger than a five-franc-piece, and, even now, although very worn, and with holes drilled through them, they are heavier than the above-mentioned coin. One with its chain weighed 48 grammes; a second, without the

chain, weighed 26 grammes; a third, apparently a native counterfeit, weighed 19½ grammes. Some similar coins were found buried near the Ankàratra mountains.* These *kiso* are apparently Spanish coins of a very early date. The shield and quarterings are, like those found in Ankàratra, very rude. Their present shape is a rough hexagon with the corners somewhat rounded, and on the right of the coin it looks as if a piece had been punched out, so as to give to the coin an outline resembling an imperfectly shaped jug. The cross and coat-of-arms is, in two of the coins, exactly in the centre, but the cross on the third coin is almost at the bottom. At some little distance from the top of the coin there remains part of an inscription, thus: SPA [600]. The coat-of-arms on these coins very closely resembles those upon some Spanish coins of from 1756 to 1800 which I possess, with the exception that in these later coins the Pillars of Hercules are standing upright.

The silver *fehin-doha*, or head-band, was a luxury in which only the very rich ladies could indulge. It was made up of small links, each having three loops in the form of a triangle, so that there would be a spare loop to hang down. Into each of the alternate spare loops another small chain of about an inch in length was added, on the end of which there was fixed a small Spanish coin, about the size of an English sixpence. The entire length of the chain was about ten inches, and it was made up of fifty links, with twenty-four of these small chains hanging down. The date of the earliest coin is 1756, and the latest is 1801. The profile of Carolus III. is clearly seen on coins dated 1773 and 1786. The best profile of Carolus IV. is seen on a coin of the year 1795. For a glimpse of the growth in the design of Spanish coins alone this old head-band is full of interest. Of the heart-burnings among the *vady kely* (inferior wives) on the appearance of the *vady bè* (chief wife), bedecked in this much-coveted head-band, it is unnecessary to speak.

The last thing of the second period to be mentioned is the *betaly*, i.e. 'much plaited,' from the word *taly* (now obsolete in Imerina), and so called from the great number of very small coloured beads plaited in patterns, with which these belts were adorned. The word *taly* is used by the Sakalava to denote ornamental plaits of hair, which are plaited very finely indeed. This *betaly* or belt was, in the first instance, probably nothing more than a row of crocodile's teeth fastened together. But during the second period the natives added to it very considerably. In the centre of the belt, for about two and a half inches in width, and for about eight inches in length, small coloured beads were plaited into diamond-shaped patterns. Both along the top and bottom of these beads small fillets of beads of a different pattern were plaited, or something else was employed to substitute them. All the beads were then fixed upon a slightly curved piece of wood. Along the top of this piece of wood holes were drilled, into which a piece of tin plated with silver was fixed. Upon the top of this, some five or six round hollow stands were worked with three small balls of silver, or silver plated, in the form of a pyramid, to complete the design. Along the bottom some five or six silver-plated ornaments resembling crocodile's teeth were fixed, and the whole belt was carefully finished off. Under this belt,

* See ANNUAL No. XVII., 1893, p. 115.

but showing above it, a broad band of unwoven red silk (see remarks upon *lamba-lapaka*) was tied round the waist.

To the Foreign period belong the introduced ornaments, concerning which little need be said. For a belt after the above pattern, and made in brass with glass diamonds to substitute the beads, the natives seem to have willingly paid from ten to fifteen pounds. Their "get-up" was very showy, and imitations of every known precious stone were tastefully arranged after the native patterns. Cheap red scarves were introduced from France or Spain to substitute the expensive native *lamba-lapaka*; and although some four or five dollars were paid for them, the natives called them *môra mănana*, i.e. 'easily obtained.' These were tied round the waist, so that the two ends, to which were attached red silk tassels, could hang down the sides of the legs of the wearer. Real and imitation coral beads were also introduced, which were worn by the *Andriana* either as bracelets, or, in some instances, as a very pretty head-dress, to substitute the silver head-band already referred to, which was worn by the Hova.

Gold and silver-plated crowns and coronets were also worn by the wealthy members of the royal class. In these crowns coloured imitations of precious stones of every description were tastefully set. For these from ten to twenty pounds were paid. Silk bands with brass ornaments were worn across the shoulders, to substitute the silver chains, as these were much cheaper than melting dollars to make *sampilahy*. Consequently, although more showy, the ornaments of this period do not possess much interest for the European. It is satisfactory to know, however, that this class of ornament did not take any hold upon the people in the country, for the richer country natives already possessed their heirlooms. If they wanted any others they hired them for special festivities from people in Antananarivo, paying some ten dollars for the hire thereof.

It is noteworthy that, as soon as Christianity took any hold upon the people in Antananarivo, they ceased to display their ornaments, and it is now only as a special privilege that one can see what little remains of by-gone embellishments. A few months back a native friend informed me that he might be able to obtain a very fine old hat for me. At the same time he spoke so highly of this hat that I thought it must indeed be a treasure, especially when he informed me that it had originally cost over six pounds. By a few questions I found that this kind of hat had been worn by all the chief men in the time of Radama to substitute the *satro-dava*, and consequently the rich country people had adopted the hat as a special favourite, and had used it at most of the circumcision ceremonies. Great indeed was my surprise when it was brought to me, very carefully wrapped up, to find it nothing more than the helmet of an officer belonging to the French Lancers! The gold braid and the tassels of the hat had "caught on" with the Malagasy. Nevertheless, the exorbitant prices obtained from the natives by foreigners for these almost worthless articles leaves an unpleasant impression in the mind of the sympathetic European.

W. J. EDMONDS.



LANIHAY, IN NORTH-EAST MADAGASCAR :

NOTES ON THE DISTRICT AND THE PEOPLE;
WITH SOME EXPERIENCES IN GOLD PROSPECTING.

MOST of the readers of the ANNUAL have probably never heard of the district of Lanihay, and even if they have, they probably know very little about it. I myself had only a vague notion of its existence about six months before I came here. I shall endeavour therefore to give a description of it, which will put those who read this article *au fait* as regards its situation and general features.

In the province of Antsihanaka, forming its north-eastern boundary, and about five days' journey from Ambitondrazaka, there is such a place as Lanihay.

Leaving Imèrimandròso and taking the road to Mândritsira as far as Anòsimboahangy, you strike west, leaving, as it were, all signs of human life, and travel down the side of a steep mountain into a valley called Mârovòalavo. You find yourself then on the southern limit of Lanihay. The reason for giving the name of Marovoalavo ('many rats'), to this valley is obvious, as the hills round about are of so rugged and broken a nature as to suggest an invasion of rats. It does really strike you as if a multitude of rats had been gnawing away deep ruts and caves in all these hills. What makes the landscape so weird is that, as the rock is decomposed into soil to a great depth, the annual rains have carved out deep gullies in the hill-sides and made them look very unsightly indeed. This valley, lying low, and hemmed in by high mountains, is very unhealthy, and is a dreary place to pass through.

But before I go any further, let me give a few details about Anosimboahangy, which interesting town we seem to have passed by without taking any notice of it. Anosimboahangy is a town of about 4000 to 5000 inhabitants. It lies in the middle of a great marsh, and is in fact an island, as indeed its name suggests (*nôsy*, island), having waterways cut through the thick rushes and reeds to connect it with the surrounding dry land, and also connecting its numerous little dependent satellites with the main island. It is by far the healthiest spot in Antsihanaka, as it is between 4500 to 5000 feet above the sea, and is on the summit of one of the numerous flat-topped ranges called Ankétsa. These ranges rise to a great altitude, reaching over 1000 feet above the general level in some parts, and stretching away sometimes for a hundred miles, the summits being perfectly level as far as the eye can see. In some places beautiful forests of fine timber are found, but the country generally consists of coarse grass, with bogs and extensive marshes. The hills are mostly inhabited, and form the grazing grounds of the wild cattle and wild-boars, which are met with in considerable numbers. But I am digressing. Anosimboahangy may really be said to be an island formed by the top of a hill. In winter it is bitterly cold; and people have been found dead after a night's exposure to the cold in the nearly freezing atmosphere on these Anketsa mountains. Malarial fever is quite unknown, even in Anosimboahangy, notwithstanding the dried-up state of the marshes in the dry season.

Marovoalavo is about six hours' journey from Anosimboahangy. Leaving the Marovoalavo valley, the course is north-west for some eight or ten hours through the same dreary, rugged and unhealthy country, until one comes to the Marivoràhona hill. After climbing this high hill, we get our first sight of Lanihay proper. It looks an ideally inviting country. Stretching on the right in the distance is the eastern range of Anketsa (the same range as that on which Anosimboahangy lies, far away south) running north. On

our right also, in the distance, is another range of Anketsa hills running parallel with the east range, and almost meeting it far in the north, a large gap lying between; whilst you are standing on a ridge which seems almost to connect the two ranges at right angles, linking the two by a base-line running west and east.

Having thus a beautiful country, well watered, and luxuriant with vegetation, encircled in a horse-shoe line of high hills, the sight which spreads out at your feet is really invigorating. Just below you, to the right, stands Miàrinarivo, the capital of this district, a town surrounded by a thick square mud wall, the space inside being packed with houses, with their thatched roofs showing black against the red hill on which the town stands. At first sight the scene is like a level central space surrounded by a circle of hills, which throw their spurs far out, and with their tops comparable to Table Mountain near Cape Town, but much more extensive. On closer inspection, however, we see small mounds and hillocks undulating up to the base of the spurs, between which flow the innumerable rivers, with their red waters and shallow beds, for which Lanihay is famous. The principal rivers are the Bèmarivo, Màrijao, Bètampapángo, Ankóbakòbaka, Manòmpy, and Ambòvoka. These are each as large as the Ikópa at Fàrahàntsana, or the Mangòro at Andákana, only broader and shallower. They all join before they reach the gap referred to above, and form the Bemarivo, which rolls its yellow waters on its northward course to join the Mähajamba in the Ibòina province. Besides these rivers there are many others of not inconsiderable size, such as the Antsèvabè, Ankaokaràtsy, Antsèvakèly, Bèràhotra, Andaombàto, etc., but these are mostly tributaries to the principal rivers above named.

Miarinarivo was built only about seven years ago. This part of the country was unapproachable before this town existed and soldiers were garrisoned here. Not until then was Lanihay safe against the depredatory bands of *fahavalo* (highway robbers) commonly called "Marofèlana," who used to come from Ibòina in the west, cross the Anketsa, and meet in Lanihay before attacking villages near Anosimboahangy and its neighbourhood. Three years before Miarinarivo was built, one Rainibòraka, a native of Anosimboahangy, was the first to establish himself and his family in Ambòasàry (east of Miarinarivo). Before him nobody was ever heard of as having lived in Lanihay, except in very early times. There are traces of its having been inhabited, but not even the oldest man in Anosimboahangy remembers having heard of any inhabitants, even in his father's or grandfather's time. The names of villages, etc., where traces of former inhabitants are found, are mere legendary names, and appear more as fables and traditions which have been handed down to the present generation by their forefathers. This part of Lanihay is a perfect agricultural and pasture country. Timber is plentiful in the deep gorges formed between the spurs of the mountains, and in the many *hady* or gullies caused by the rains eating away the sides of the hills. Water is very plentiful; you can scarcely go a mile in any direction without meeting with it. As far as I can ascertain, I should say this beautiful valley is 30 miles long and between 25 and 27 miles broad. This would give an area of more than 700 square miles, that is, nearly the size of the island of Mauritius.

Lanihay, with its rich soft soil, plentiful water-supply, luxuriant pastures, and abundance of timber, as well as its mineral wealth, has, I believe, a great future before it.

I have not said anything yet about the population. Lanihay has many villages scattered about, especially to the east, north-east, and west of Miarinarivo. The total population may be reckoned at between 3000 to 4000 souls. They are mostly herdsmen, who look after the cattle which graze all over the place. Some of the chief nobles and high officers in Imerina, and many others, have large herds here. Those who form the population are

Sákaláva, Sihánaka, and Hova, also a few Tankárana, Taimòro, Bétsimisára-ka, and Makòà. The town of Miarinarivo is, for the most part, inhabited by Hova; and the Governor, Rainilaiàry, is the terror of *fahavalo* and Marofelana. He is assisted by a staff of Sihanaka officers from Ambatondrazaka. They have a school and a church. On my first arrival in Miarinarivo I was the indirect cause of a mutiny in the school. The children and also many of the women had never seen a white man before, and they broke all school discipline and followed me about, criticising every step I took and everything I did. They gave me some peace, however, after I had distributed some pages of the *Graphic* and the *Engineer* all round. It was amusing to watch them turning the picture of a boiler or some piece of machinery round and round, looking at it in every direction, some saying it was a dog, some that it was a house; but they ended by agreeing that it was either a horse or a ship!

I left Miarinarivo on a fine February morning in 1894, and struck west to try my luck at finding some payable gold, as I was certain that such a promising country would not disappoint me. So, after some six hours' walk through the trackless wilds, and under a burning sun, we reached Anànona creek about sundown. We found good gold there, and decided to camp by the creek and prospect the neighbourhood the next day. I was accompanied by the Governor of Lanihay and his escort of 20 officers and men, while, through the kindness of the Governor-general of the district, I was also supplied with a number of officers and soldiers, as escort. We camped in grass huts made by tying together the tops of the tall grass for a roof, and laying mats on the ground. During the night the rain came down heavily, and I found myself in about six inches of water, with my trunks and chattels floating in it. We had to remain as we were until the rain stopped; then we managed to light a fire, by which we dried ourselves and our clothes. We lived out in the open for four or five days more, until I got a little hut built, made of grass and reeds; but it was water-proof, and that was all I wanted.

The day after my arrival I managed to get together 30 men and sent them prospecting in different directions, while I went south, following up the stream. We all found encouraging prospects, and so I decided to establish myself at Anànona, giving a free hand to anybody who wished to work. This encouraged men to come to us in great numbers, and by the time the week was over I had as many as 150 men employed. When they had had a fair trial of what was to be done, I stopped every one from working, until they had furnished themselves with licences. The suspicious men held aloof, not daring to trust their money before-hand. But I had previously picked out nine of the best of them and furnished them with means of procuring licences; so when the rest saw these nine men come and deposit their money fearlessly in exchange for papers, they held back no longer, as they could not stand seeing their nine companions getting the best grounds and richest spots all to themselves; and then, as I expected, there was a rush for the licences, until I had to have myself surrounded with soldiers to keep them from crushing and stifling me in their eager rush.

Some of them, having no money, borrowed from others at 100 per cent. per month, the sole guarantee being the gold they were going to find. So, while I was issuing these licences, the soldiers and officers were doing some lending on their own account. But most of the workers had money, as they had sold me their gold during the week they were allowed to work free.

The workers, as they appeared at first, were a wretched set of folks, for the greatest rogues for miles around had congregated here. Most of them were so destitute that they had hardly a loin-cloth to put round their bodies. They had nothing to eat save what rice and yam they could pick up here and there; so I had to dispense some rice, and had bullocks slaughtered, to give them a start. Afterwards the horrid *barisy* or rum was brought in,

and then there was no peace, and this went on for some time; to stop it at once would have only created more confusion, especially as some of the men still regarded me suspiciously and had not yet learned to know me. So I had to go about this business gradually, letting the men know that it was only for their own good that I wished to stop the drinking, until they began to trust me more. When I had obtained sufficient influence over them, I showed them the way I wanted the business to be carried on, and told them that I was not going to have any rum drinking. I soon had an opportunity of striking a great blow at the rum and, at the same time, at the *fady* or superstitions which interfered with the work. Five months afterwards, having been in the meantime reinforced by both European and respectable Malagasy helpers, we built the village of Soamandrakizay, and established a firm hold on the workers. They saw that everything we did was for their own good, so we managed to get them to help us in keeping order, which they readily did, and fetched their wives and children. Now we have a little town of about 120 houses, the people coming out every market-day and on Sundays in their gayest and whitest clothes. The change is marvellous. We have now a decent, orderly, and clean set of people, instead of the scamps who first came to work. But they are the same men and women, only they behave much better now. Of course there are still bad ones among them, and these have to be ruled with a firm hand. The Bèna-hoana, as they are called, are people who have been cattle-lifters, or have followed some other similar occupation, having left their homes with a blot on their character, and having for many years lived a nomadic life. There are some, however, whose only fault is that of having run away from the gold mines of Mèvatanàna. These are for the most part a rough and unruly set, but now and then one or two of them join the reformed side, so that the worst are gradually being left to shift for themselves.

These native workmen are, as a whole, very superstitious people, and very daring but easily led. If there should be a rogue with a strong will to lead them, they would soon all become bad together. If, however, you want them to do well, this can, with tact, be managed. The great thing is that it must not come direct from you. When you want them to reform, the work of reformation must be done by their comrades; and with a little care, you will soon see a change for good. By this means they credit themselves with having overcome their bad habits, and this makes them feel as though they belonged to a higher class. When I made them give up the rum and the *fady* days, etc., I did not appear in the struggle at all, and matters progressed fairly until the blow was struck. The men, having become reformed, now make their own town laws and rules, and hand them to us as the executive power. They need guiding very discreetly in these reforms, for it is no use trying to force them.

When I started work here, I chose Thursday as the market-day, that being the most suitable, as it allowed the traders time to get their supplies from the markets of Imèrimandròso and Anosimboahangy, and to reach home just in time for the Thursday market. But we shall change this day after a while, and make it Saturday, so that the men can attend service on the Sunday. By that time both our church and our school will be ready for use.

Lately, the gold getting deeper, the workers have been digging pits as deep as from 30 to 40 feet, and we have come across a quantity of old pottery, unfortunately all broken up into bits and scattered about. I also got an old spear in very good condition. All these were at the depth of about 35 feet. There is no doubt that this place was formerly inhabited, but it must have been a long time ago, perhaps hundreds of years since.

According to information I have received, I find that the Anosimboahangy tribe keep a kind of genealogy, the father giving his children the history of his life as well as that of his forefathers, which had been handed down to

him by his parents. So, in questioning one of the oldest inhabitants about there being former settlers here, he said that there were many villages in former times, long before Radâma I. visited these regions. One of these villages, Antanânandriamilaona, is not far from here, as well as the ruins of another village, which I recently visited with my companion. We found a large amount of old broken pottery, and some pieces of old steel, but much eaten by rust, which look like parts of knives. The designs on the old pottery are very original and simple. But the name of this latter village is forgotten. The Anosimboahangy people here say that the name Andriamilaona is coupled with the traditions of Rasôalao, Rafôtsibêravôlo,* and others, whose spirits, it is said, still roam about looking after their former earthly property.

The designs of the broken pottery found on the site of these ancient villages correspond in every way to those found below ground, except that while those found on the village sites are soft and easily broken, those discovered under ground are hard and require a hammer to break them. The pits dug are generally in the creeks, and the deposits are probably very old. The deposits one comes across in digging may be shown thus:—

The broken pottery and spear-head were found with the gold deposits at the bottom.

sand
 5 to 40 ft. deep. earth
 sand and gravel wash
 quartz and coarse gravel (gold)
 clay (tanimanga)
 coarse sand and gravel
 quartz and coarse gravel (gold)
 black sand
 bottom-gold deposits, rich.

On the banks of these creeks there are immense trees, 80 to 150 feet or so high. These trees have to be cut down and dug out before we get at the pottery. The principal finds are in Ambôdihârîka, to the south, and on the hillocks forming the base of the Anketsa, where the latter curves round and forms a *cul-de-sac*. Again, at Ambôdivato, to the north, many pieces of pottery, a silver coin, and human bones, were found at a great depth. The man who found the piece of silver unfortunately threw it away, saying he was afraid of the spirit being angry with him if he took it. Just to the east my companion and I went to see the site of an ancient village with five successive ditches round its base. It must have been an impregnable fort in the old time. It contained probably about 150 houses, and the old men say that formerly each house contained from 25 to 40 people. The sides of the hill where this ruin is situated are littered with broken pottery, and tombs are found all over the place, with the usual upright stone slab. The natives dread those tombs very much. But some day we may be able to have a look at the contents of one of them, if one should be opened—by mistake—of course!

Just a few words in conclusion about the superstitions of the people. These are mostly stories about Rasôalao and Rafotsiberavolo, etc., an account of whom may be found in the *Malagasy Folk-Lore*. All the wild cattle and wild-boars which abound on the Anketsa are looked upon as the private property of Rasôalao, and they are watched over by the spirit of Ikôto-fôtsy, her slave; and if you want to shoot or spear wild cattle, you must take some rum, rice, tobacco, and a few beads, and offer them to the spirits as you get on the hunting ground, asking her to allow you to take a bullock or two. If agreeable, she will at once send a herd galloping past; then you must stalk them, keeping to leeward, and when close enough, fire just below the shoulder. But don't, for goodness' sake, cry out "*vôa*" (hit) or "*mâtŷ*" (dead),

* These are names of ancient chieftains, said to be of the Vazimba, or supposed earliest inhabitants of the central provinces.

even if the animal is breathing its last. If you happen to make that mistake, not only will Dame Rasoalao be vexed and make the bullock get up and run away, but you will have to stand and hear the crowd of natives, who have accompanied you, hurling curses at you and hissing you for your foolishness. If you must exclaim, then say "*vòatady*" (tied); then the bullock will be sure to be yours. It is the same with gold. If you have a rich claim, and you are washing say $\frac{1}{2}$ dwt. or more to the pan, and you exclaim and shout at the fortunate result of your washings, then it is all up with you, you are sure to find nothing in the next pan, unless you go there and then to beg pardon of Rafotsiberavolo and make her an offering. Be it understood that everything living belongs to Rasoalao, and anything pertaining to the ground must be begged of Rafotsiberavolo.

It is the same if anybody comes and looks at the gold in each pan: he must not say "*bètsaka*" (much), that would be fatal. He must say "*mahavay*," which, I suppose, pleases the spirit better.

Once a man came to me and said he had found no gold. Knowing the man to be in possession of a rich claim, I expressed my surprise and asked him what he had done. He said that the spirit would not allow him to work it, and was constantly fighting with him until he agreed to work somewhere else. He further informed me that whenever he went near the place he felt pains all over his body, and that was a sure sign of the spirit's displeasure. It appears he had only caught cold, and as his pit was exposed, he coughed more when in the water and exposed to the wind. I sent three boys, who worked the claim out and got over 2 oz. in a fortnight.

Lately there was a good deal of *sikidy* divination going on about a certain disease which was in the land. So the *sikidy* decided that everybody must kill a fowl of a certain colour; more than two must not partake of it, its head and feet must be strung up on a pole fixed in a cross-road, while the feathers must be taken up stream and thrown into the water; then the patients run and wait for the feathers further down the stream. They must sit in the water, and as soon as the feathers are brought down by the current, they must take as many feathers as they can in one hand, with another handful of water, then throw it all over the head down stream, saying: "Go thou with the stream, O disease!" Anybody not doing this is sure to die of the disease when it comes. So one fine morning we found all the roads ornamented with fowls' heads, etc. I heard that as far as Miarinarivo, and even Anosimboahangy, the same thing was practised. I soon persuaded the workers of the absurdity of all this, and having had those who had done it laughed at and chaffed by their chums, I told them that it was all a trick of somebody who had a lot of fowls to sell, and wanted them to pay a big price and pocket their money, while smiling at the simpletons who had believed in them.

I find that most of these superstitions are introduced by vagabonds from Imerina, who make a living by swindling the simple and credulous provincials.

H. HANNING.



THE SIEGE OF ANTSIRABE:

THE STORY OF A HEROIC DEFENCE.

EVERY one knows that during the greater part of this year (1896) a very wide-spread rebellion has prevailed all around the central province of Imérina. This has been primarily an anti-foreign movement, during which Europeans of several different nationalities have been killed; but it has also had a very strongly-marked anti-Christian character, for churches of all communions—L. M. S. and F. F. M. A., Anglican and Norwegian, and also Roman Catholic—have been destroyed, to the number of several hundred in all: while pastors, evangelists, and teachers have been the first to be sought for by the rebels, and have in several cases been killed. Many mission stations, with their churches, school-houses, hospitals, and missionaries' residences, have been utterly destroyed, involving a loss of many thousand pounds; while the burning of native villages, the destruction of the stores of rice, the carrying off of thousands of cattle, and the capture of large numbers of people as slaves, has brought an untold amount of misery upon the peaceable inhabitants of the country, such as the people of this part of Madagascar have never before experienced. The year 1896 will be long remembered as the saddest time ever known in the history of the Hova Malagasy.

It is evidently supposed by many, who derive their knowledge from newspapers only, that a particular tribe called the 'Fàhavàlo' are the leaders in this rebellion; and a new word, '*fahavalisme*,' has even been coined to describe their doings. The word *fàhavàlo*, however, is not the name of any tribe, but is simply the Malagasy word for 'enemy;' and 'brigand' or 'rebel' would be its nearest English equivalent as applied to these marauders. They consist partly of deserted soldiers, who have never given up their arms and ammunition, and to whom have been added numbers of those who dislike the idea of foreign control of any kind, as well as those who have always been attached to the old idolatry and superstitions; and in addition to all these, the bad and ruffianly element in the population has come to the front, glad of a chance to rob and injure the quiet and law-obeying members of the community. In many places these rebels have assembled in large numbers, and have formed extensive camps; and from their ability to move rapidly, unencumbered by the baggage and other 'impedimenta' of regular troops, and their knowledge of the country, they are able to evade the forces sent against them; so that although always suffering heavy losses when they have dared to face even a small body of European soldiers, they soon reappear in another quarter and baffle the attempts made to crush them. They are known also by the name of 'Menalàmba,' lit, 'red-clothes,' from their *lamba* and dress being unwashed and stained by the reddish soil of the country. Another name for them is 'Màrosèlana,' because of their wearing many (*màro*) *fèlana*, a circular ornament made from the top of a *Conus* shell, or simply a small disk of white wood.

The sad events which occurred in November 1895, at the F. F. M. A. mission station of Arlvonimamo, when Mr. and Mrs. W. Johnson, with their little girl, were barbarously murdered by a crowd of natives, was briefly noticed in the last number of the ANNUAL (XIX., p. 382; see also p. 456, *ante*). After severe punishment had been inflicted upon the rebels by the French forces, things seemed to settle down, and for two or three months the country was tolerably quiet. In the month of February, however, the rebellion broke out again in the districts to the north of the Capital, in the valleys of the Mananára and Manànta, 40 or 50 miles distant, and soon assumed formidable proportions. Village after village was attacked, and church after church burnt, until almost all the evangelists and teachers had to flee for their lives, after losing all the property they possessed. Soon the rising extended to other districts, and reached to within eight or ten miles of the Capital, or even nearer, so that night after night the sky was lighted up by blazing villages, and there were even rumours that Antanànarivo itself would be attacked. Sad tales of sorrow and loss reached us from all quarters, the only bright spot in the darkness being the assurance that several had chosen death rather than promise to give up Christianity, and so had continued the line of Malagasy martyrs for the faith of the Gospel.

Many stirring tales of hair-breadth escapes during this time of peril might be told, but perhaps there have been none to equal in thrilling interest the story of the siege of a few Europeans, chiefly women and children, at Antsirabé, in the month of May.

Before giving the details of this story, it may be premised that one of the most important fields of work occupied by the Norwegian Lutheran Mission in this country is that of the district of Vakinankaratra, which is situated to the south and south-west of the great mountain mass of Ankàratra, not far from the centre of Madagascar, and from 50 to 80 miles distant in a south-westerly direction from the Capital. In this region, very interesting to the geologist from its numerous extinct volcanoes, hot springs, crater-lakes, and other indications of subterranean forces, there are a number of mission stations, with very numerous churches and schools, and with many thousands of people under instruction. One of the most important of these mission stations is Antsirabe, a large village, with handsome church, mission-houses, school buildings, sanatorium, hospital, and a leper asylum only a little distance from the village. A considerable number of sick people are constantly at Antsirabe in order to bathe in the hot springs, which are of much benefit in certain complaints. In the lime deposits from these springs many discoveries of great scientific interest have been by the resident missionary, the Rev. Pastor Rosaas, and others during the last few years; and the remains of extinct animals—hippopotami, huge tortoises, crocodiles, æpyornis, and other old-world existences—have thrown much light upon the by-gone fauna of this great island.*

During the early months of this year the Vakinankaratra district remained tranquil, unaffected by the unrest of much of the surrounding country; so that the missionaries of the different stations thought

* See ANNUAL XVIII., p. 136, "Recent Researches in Madagascarian Palæontology."

that they could safely leave their wives and families to attend the annual conference or synod of the Norwegian Mission, which was this year held at Fianarantsoa, the capital of the Betsileo province, more than a hundred miles away to the south. The ladies and children of the mission were, however, brought up to Antsirabe, so as to stay together during the absence of their husbands and fathers; and with them were also two of the senior members of the mission, Messrs. Engh and Vig, who were in poor health and therefore did not attend the conference. There were therefore two gentlemen, sixteen ladies, and nine children living together at Antsirabe in the month of May last.—J.S. (ED.)

On Whitsunday, May 24,* after morning service was concluded, a report was heard that a large band of rebels, led by Rainibétsimisarak, a noted bandit chief, was marching towards Lôharano, another Norwegian station, about two and a half hour's distance towards the east. In the afternoon this report was confirmed, and presently certain information was received that the station had been attacked and looted, and was then in flames. The missionary, Mr. Gulbrandsen, who was then at Fianarantsoa, and his wife, then at Antsirabe, had thus lost all that they possessed. Little thought, however, could be then given to this calamity, since the messenger added that the rebels were advancing in the direction of Antsirabe!

There happened to be then staying at the Sanatorium M. Gerbinis, French interpreter to the Residence at Bétafo, and his young wife. The Resident of Bétafo, M. Alby, had stationed at Antsirabe 20 Malagasy militia, under the orders of two French sergeants; he himself was on a tour of inspection to the south, together with 30 native militia and the Governor Rainijaonary and his troops. At Bétafo there was also staying the secretary of the Residency, three sergeants, and 30 militia, all new recruits. M. Gerbinis immediately despatched a messenger to Bétafo, which is about three hours' distance from Antsirabe, so as to obtain help; and at 2 o'clock on Monday morning a sergeant and 16 militia arrived. The plan of defence was quickly arranged. The forces available were insufficient to defend the village, it was therefore decided to concentrate in Mr. Rosaas's house, the only one which was roofed with tiles, and could therefore offer any resistance to the most dangerous weapon of the brigands, viz. incendiarism. The women and children were placed in the attics.

At about 10 o'clock in the forenoon, savage and menacing shouts announced the arrival of the enemy. Two hundred of them were armed, it was afterwards ascertained, with rifles, and the rest with long knives and clubs, and big hammers for breaking down the doors. Presently the tiles began to fly in splinters under the hail of musket balls, and from the attics the women and children were obliged to descend to the second story. A hot fight then followed, which lasted until 5 o'clock in the evening. The attacking force consisted of at least 1500 men; they carried a red flag, and in the rear was gathered a crowd of people, ready

* The remainder of this article is translated from a paper contributed by Prof. Krüger to the *Journal des Missions évangéliques* for August 1896; and this again includes, as will be seen, numerous extracts from letters written by those who were among the besieged at Antsirabe.

to take part in pillaging, if victory should declare for the insurgents. "In less time than I can describe it," writes Miss Engh, "we saw the Sanatorium and the Hospital surrounded, looted, destroyed, and almost immediately the rush roofs of these buildings were burned."

Then the house of Dr. Ebbell was attacked. As the fire of the besieged commanded the door, the rebels lost not a few men before they decided to enter at the back, after having broken the outer window shutters. A column of smoke rising above the grass roof soon apprised the besieged of this new movement of the assailants. This house on fire was only a dozen yards away from that of Mr. Rosaas.

"There were then flames rising on three sides. In every direction there were masses of men, thirsting for our blood, surrounding us," says Mr. Vig. "They raged worse than the most ferocious beasts. Could it be that in this Hospital many Malagasy had had their lives preserved to them, that many others had been solaced and cared for up to their last breath by loving and kindly hands? Was this the reward of the work of mercy accomplished by Dr. Ebbell and the two sister deaconesses, Anna Hofstad and Maria Totland?"

One of the sergeants, the heroic Delalbre, endeavoured to make a diversion by throwing himself into the midst of the brigands, but they were too numerous. Besides which, they surrounded the northern gate of the compound; so it was necessary to recall the sergeant, who returned, covered with blood, but not dangerously wounded. On this (or the following) day, he, true French soldier, gathered before his return, and under the fire of the enemy, a handful of flowers from the garden, to offer to the ladies who dressed his wounds. Then he went and sat under the verandah and, calmly taking aim, fired at the assailants. At each shot which took effect, he called out: "*Tsarà va, tompoko è?*" "Are you well, Sir?" the usual salutation addressed to the nobles.

The gateway of the compound was by this time broken through, and the enemy crowded together behind one of the outbuildings containing stores, at only a few yards' distance from the house. Once more Delalbre offered himself for very dangerous duty and, with some militiamen, went to find in this small building, the wall of which had been already pierced by the enemy, six tins of paraffin, which would have become a formidable weapon in the hands of the rebels.

The men, excited by the intensity of the struggle, had no time for reflection. But who can picture the feelings of the women and children, seeing these savage crowds, wild, merciless, and innumerable on all sides, the flames all around the house, and knowing that the small quantity of ammunition of their defenders was being rapidly exhausted!

However, the attack ceased towards five o'clock, although the house remained surrounded by the enemy. When darkness came on, a red glare could be seen lighting up the horizon to the south and the east, as well as in the direction of Mâsinandriana. This was caused by the rebels burning the churches in those localities. Nearer still, to the unspeakable sorrow of all, but especially of Sister Maria Forcide, Ambôhipiantrana, the leper village, with its church, could be seen on fire! "Poor people!" cried Miss Engh, "must they also suffer from having accepted the Christian help of a few Europeans?"

And now, waiting for help was a sore trial for the besieged. Would the few soldiers and the two sergeants left at Betafo come to our aid? "We expected them on Monday night," says one of the party; "our excited hopes reached their height on Tuesday, in the morning. But no one appeared. Then we began to understand that it was all over!" The fact was that the secretary of the Residency, with the two sergeants and twenty-three recruits, had advanced as near as about a mile and a quarter from Antsirabe on Monday evening, towards five o'clock; they saw all the village in flames, but the firing they had heard during the afternoon had ceased. They very naturally came to the conclusion that the besieged had been overcome, and when they saw Ambohipiantrana also burning, they fell back on Antananarivo. It was thus that those in the Capital heard the alarming first reports that all the Europeans at Antsirabe had been killed.

On Tuesday the enemy seemed chiefly employed in carrying off their booty. It was not until towards noon that they re-formed in a column to renew the attack. And then ensued a deadly fight, which lasted until the evening. The old Sanatorium, in the middle of the compound, was burnt, then, a lower building, protecting two flour-mills; the line of fire was thus concentrated around Mr. Rosaas's house. And now only a few cartridges remained, which were divided among the best marksmen.

For some time the destruction of the church occupied the attention of the enemy: but this did not help to reassure the besieged. "I hope that no Christian or any civilized being may ever hear such yells and diabolical cries as those which seemed to freeze the very marrow of our bones, while this mob of savages smashed up everything which had been consecrated to the Lord," says one of the missionaries: and Miss Engh wrote: "Everything was broken up into little bits: the benches, the pulpit, the altar, the baptismal font, the harmonium, the doors, and the glass windows. The Satanic din which accompanied this destruction was what terrified me most of all."

The night of Tuesday was comparatively quiet; but the light of the new day--nobody could feel any doubt of it--must shine upon the end of the siege. "We were preparing to give up our lives," say, in almost identical words, all the letters which I have looked at. "We were ready for the sacrifice. And I am persuaded," adds Mr. Vig, "that we should all have met together again in heaven. But, fully prepared to die as we were, I must add that the form in which death presented itself to us made us shudder with fear. The demoniacal cries of the night watchmen still ring in our ears."

On Wednesday the brigands did not approach in a mass or in orderly ranks. They came on in small parties, and had ceased to attempt to storm the position. They did not know that with the few cartridges which remained it was impossible to keep them at a distance. They changed their tactics, and now collected together all the wood and other combustible matter in order to suffocate the besieged, and to accomplish this they got a large quantity of chillies, a condiment largely used by the people; for these, when powdered and thrown on the fire, produce acrid and intolerable fumes. They also brought a barrel of gunpowder. Others came armed with spades in order to undermine the house at the four corners.

"The cords of death encompassed us," writes Mr. Vig. "We cried from the depths of our hearts to the God of our salvation, although, to all human appearance, all hope was vain. M. Gerbinis, who, up to that time had done all in his power to sustain our courage, at length said that we could now only expect help from God. Would the Lord deliver us all from a frightful death? Would He permit these pagans to yell with delight, thinking that they had conquered the God of the Christians? There were of us altogether, 27 Norwegians—16 women and young girls, 9 children, and 2 men; 5 French—M. and Mme. Gerbinis and the 3 sergeants, in all 32 Europeans, besides 35 Malagasy militia and some other natives who had taken refuge with us. Had we not a right to hope that God would have pity on the little children? As long as we prayed, we believed it would be so; but after that, in view of the actual position, darkness surrounded us once more."

Towards one o'clock on the afternoon of Wednesday, May 27th, one of the besieged thought he could perceive a number of people on one of the hills to the west, and presently all attention was directed to this point of the horizon. Was it the help waited for in vain during the past two days? or was it a re-inforcement of the enemy coming to hasten the finishing of it all? As the besiegers diligently continued their preparations for setting the wood on fire, one was disposed to believe the latter alternative. But, lo! as we begin to see more distinctly, there is a white flag visible above the approaching column. It could not then be the rebels! there was no more room for doubt, our God is a God who hears prayer. "We could not contain ourselves for joy," writes Miss Engh; "cries of joy broke forth from the militia, so that the house rang with them; some were dancing, and others clapping their hands. Only those who have seen death near on the face of the deep, while clinging to some floating fragment, despairing of life, and then suddenly rescued by a boat appearing unexpectedly, as it were miraculously—only such can realize what we experienced at that instant." Mr. Vig expresses the same feeling: "Never can we forget that moment. Our lives were given back to us as by a miracle."

Suffice it to say here that by a providential intervention, the details of which are too long to be described in full, M. Alby and Rainijaonary altered their route, and had arrived at Tránomainty on the Tuesday evening. There they were told of what was occurring at Antsirabe. Fatigued with a long day's march, they set out immediately, and arrived at Betafo at about 4 o'clock in the morning; and after a few hours of very necessary rest, they marched on Antsirabe.

The rebels appear not to have seen them coming, or perhaps they thought the advancing force to be some of their own friends. Be that as it may, they were completely surprised and were killed in great numbers. During the evening and on the following day more than 500 corpses were counted. On the side of the besieged, only one man, the Governor of Antsirabe, was hurt, but he was so severely wounded that he died not long afterwards.

While the fugitives were still being pursued, Sister Maria Foreide had already run to the leper village, to comfort and tend the helpless creatures whom she found still alive there, some crouching under a fragment of wall, or hiding among the bushes.

"Mournful sighs mingled with our joy," wrote Mr. Vig towards the end of his letter, "when we saw more closely the effects of the terrible destruction all around us." Without reckoning the personal losses of the missionaries, the loss of the Norwegian Society through the whole district is estimated at £8,000. Of the two districts of Antsirabe and Loharano, 75 churches are burnt and destroyed. The heathen have done their utmost to destroy the work of God. When they burned our churches and leper home they shouted: 'Where is now your God? We have buried your Jesus!'" "But," adds this missionary, "these material disasters are not the worst. That which has happened will throw back our work for many years. I cannot divest myself of the fear that all must be recommenced."

F. H. KRUGER.

Note.—To the above account it may be added that in addition to the destruction of the F.F.M.A. station at Arivonimamo, and of the S.P.G. station at Ramainandro, last year, and of the Norwegian stations in Vakinankaratra this year, the L.M.S. has also suffered the loss of all the buildings at its station at Fihaonana in Vónizongo, and of its pleasant Sanatorium at Ambátovòry, described in the last ANNUAL. This year has therefore been a disastrous one for all missionary societies, as well as for our Christian Malagasy people.—EDS.



BOTANICAL AND NATURAL HISTORY NOTES.

Madagascar Piassava* (*Dictyospermum fibrosum*, Wright).—For nearly twenty years a fibre closely resembling Brazilian piassava has been obtained from Madagascar. It was moderately long, of a rich brown colour, and evidently obtained from the stem of a palm as ordinary piassava. The quantity produced was never very large, and in the early stages of the enterprise the fibre was shipped in a very rough uncombed state. Latterly the quality has much improved, and during the period when this class of fibre commanded specially high prices, the shipments were probably remunerative. Owing, however, to the discovery of West African piassava or "bass fibre," obtained from *Raphia vinifera* (described in *Kew Bulletin*, 1891, pp. 1–5), the prices obtained for Madagascar piassava have apparently fallen almost as low as the cost of production, hence little of it has appeared lately in the London market. The first specimen of Madagascar piassava, now in the Kew Museum (No. ii.), was received in 1890. At that time the plant yielding it was not known. The more common palms of Madagascar, such as species of *Hyphæne*, *Dypsis*, *Raphia*, and *Bismarckia*, were believed not to yield this fibre. Hence it was inferred that there existed in the island a palm not yet described. This eventually proved to be the case. Kew obtained in 1890 specimens of the complete plant, known locally as *Vónitra*, with stem and leaves showing exactly the manner in which the fibre was produced. Each plant had a slender stem about 5 feet high and 2½ inches in diameter. This was surmounted by a crown of graceful pinnate leaves 5–6

* 'Piassava' (from the Port. *piacaba*) is the fibre of a Brazilian palm, and is used in making brushes, brooms, etc.

feet long. The whole stem, to the base, was thickly invested by a dense mass of fibres formed from the inner sheaths and the edges of the petioles. The individual fibres were finer and more flexible than Brazilian piassava and also slightly shorter; in other respects they resembled it very closely. As to the commercial position of the fibre, we are informed that "of late, Madagascar piassava has been well combed, straight, and clean, and in this state it is worth from 30 to 37 pounds per ton; but as the quantities sent home, even at these rates, are small, we are led to conclude that the preparation as now done is costly." The shipments are made from Tamatave and some of the ports to the south. In September 1894, Madagascar piassava was reported to be "in demand," and the price had risen to 46 pounds per ton. Fresh seeds were obtained, and from these numerous plants, now about 2 feet in height, have been raised at Kew. They are nearest to *Dictyospermum album*, a well-known ornamental palm from Mauritius and Bourbon, but are easily distinguished both from this and other species. Many of the plants raised at Kew have been distributed to botanical establishments in the colonies. Very soon the species will probably be well represented under cultivation.—*Kew Bulletin*; Oct. 1894, p. 358.

A Silk-bearing Bush.—"Now that the French have taken Madagascar, there is little doubt that we shall see a variety of new commodities in Europe, and one of these will be the silk of the *Vampanôry*, a shrub which bears a fibre resembling silk, as the cotton plant bears cotton. The shrub has long, pointed, deep-green leaves, and a red flower, with prickly seed-cases, from which the raw silk bursts when the seeds are ripe, a tuft of the silky fibre adhering to each seed, for the purpose of wafting them, like thistle-down, on the wind to a distance from the parent plant. The fibres are about an inch long, and are very fine in quality, having the lustre of yellow silk. This material has not been much employed, except to stuff cushions and the seats and backs of palanquins. But M. George Chapin, a recent French traveller in Madagascar, is of opinion that the mechanical difficulties of weaving the silk are not insuperable, and with improved culture of the plant, and suitable machinery, we shall before long be wearing the beautiful cloth of the silk-bush."—*Cassell's Family Magazine*; July 1896; p. 669, with illustration.

Madagascar Ebony and Sandal-wood. The flora of the lowlands of Madagascar is very imperfectly known at present, but Mr. J. G. Baker, F. R. S., Principal Assistant in the Kew Herbarium, has for many years devoted attention to the flora of the mountainous parts of Madagascar, and has described the plants, collected, for the most part, by the Rev. R. Baron, in various numbers of the *Journal of the Linnean Society (Botany)*.

It is well known that the heart-wood of many different species of *Diospyros* constitutes the ebony of commerce. There are now (1892) about 26 endemic species known of *Diospyros* from Madagascar, but it is impossible to identify any one of these as yielding the true ebony. One of the largest English timber merchants, who has an extensive knowledge of the hard woods of commerce, states that, "at present the only Madagascar wood known in this country is ebony, and in this my house is the largest operator. Hitherto we are dependent for supplies on the French and German houses. We understand the wood at present is smuggled out of the country. There is a large and increasing consumption of it."

True sandal-wood is yielded by different species of *Santalum*. Indian sandal-wood is derived from *Santalum album*, L., and West Australian sandal-wood from *Fusanus spicatus*, R. Br. "A Contribution to the knowledge of Sandal-woods" is given by Andreas Petersen in *Journal of the Pharmaceutical Society*, vol. xvi. [3], p. 757.

According to Mr. Baker there is no species of *Santalum* known from Madagascar. *Pterocarpus advenus*, Baill., is, however, native; another

- which yields red sandal-wood, or Saunders' wood, is doubtfully native. In the northern parts of Madagascar, according to M. Cachin, a wood with properties similar to sandal-wood is known under the Sakalava name of *Hazoranto*, while another wood, called *Sâza*, smells of aniseed. The latter is probably *Croton anisatum*. Baill.

- In the Kew Museum there is a specimen of wood labelled "*Santal vert*" (*Croton* sp.), exported from Madagascar and Zanzibar into India, where it is said to be used for burning the bodies of the Hindoos. Also a specimen from Mr. J. Heathcote, from Professor Mac Owan, received February 6 1886, labelled "Wood like Sandal-wood" (*Croton* sp.). It is ground up and mixed with water, and is used by the natives at Inhambane to anoint themselves. These latter are not properly sandal-woods. They are mentioned as indicating the possible source of what is called sandal-wood from Madagascar.

A merchant living on the west coast says: "In the Sakalava country, south of Maintirano, there are large tracts of forest in which the ebony tree is found and cut by the Sakalava and brought to Maintirano, and there sold to the Indian and Arab traders, in exchange for cloth, for merely nominal amounts. Some comes north to Soalala in Baly Bay and is there exchanged. The Indian and Arab traders send it to Mozambique and Nossi-Bé, and, if large and sound wood, it fetches from 40 to 55 dollars a ton.

- "I heard also, when I was in Mahajamba Bay, that ebony grows on the banks of Narinda Bay and is sent to Nossi-Bé, and that there are large trees of it, but I was unable to go, as small-pox was raging in all the principal towns. I myself found ebony close to Ampâsimarina, about 20 miles N. E. of Mojangâ; ebony was here both small in size and quantity. From there to Ambôlibôzo, a village on the southern entrance of Mahajamba Bay, I did not discover any, but it seemed to recommence there in small quantities, and extended along the southern bank of the bay. At Ampâsimalaotra, on the bay, there were large quantities of small wood and a few large trees; and at Androhibé, about 10 miles inland, I saw several fine old trees of ebony. At Ambôhillana, not far from there, I cut some samples of sandal-wood and sent them to London, and was informed that its value there is from 25 to 60 pounds a ton.

"From Soalala to south of Maintirano (Maintirano excepted) it is said to be unsafe for a white man to go, and impossible for a Hova. And again, south of Môrandava the same thing occurs; but in a few Sakalava villages there are Creole traders' agents."—*Kew Bulletin*.

The Affinities of *Æpyornis*.—Concerning the affinities of *Æpyornis* the most divergent views have been held. Isidore Geoffroy in his original paper referred it to the Brevipennes (Ratitæ), an opinion now universally accepted. Valenciennes considered it to be a diving bird, related to the Auks and Penguins. Bianconi, in a long series of papers, strove to show that *Æpyornis* was the 'Roc' of Eastern fable, and that its nearest living relative is the Condor. Milne Edwards and Grandidier confirmed Geoffroy's original opinion, and considered that *Casuarius* and *Dinornis* are its nearest allies. Von Haast, on the other hand, opposed this view and asserted that the resemblances with *Dinornis* are superficial. Recently this opinion has been endorsed by Fürbringer and R. Burckhardt, both of whom, after an elaborate comparison of the *Æpyornithidæ* with other Ratite families, came to the conclusion that such resemblances as exist between *Æpyornis* and *Dinornis* are merely the results of convergence resulting from similar conditions of life, and that though the great massiveness of the skeleton (pachyostosis) is characteristic of both families, it is attained in quite a different manner in the two cases. This conclusion would certainly seem to be supported by the bones here [in the previous portion of the paper] described.

In the femora, for instance, apart from their great difference of form, the

large upper pneumatic foramen, the numerous smaller ones opening into the popliteal fossa, and the great development of the bony reticulum, are characters entirely wanting in *Dinornis*. Such points of structure as these appear to be of more importance in determining affinities than the mere external form of the bones, which may be supposed to vary more readily with changes in the conditions of life; for it is difficult to understand how such differences of structure could arise in two closely-related forms, since the same end appears to be attained in the two cases in different ways. The conclusion to be drawn from this is that the divergence between the two families must have occurred before the characteristic pachyostosis had been acquired. In their recent paper Milne-Edwards and Grandidier have given a brief description of the skull, which, as far as it goes, does not seem to afford much evidence in favour of the supposed close relationship with *Dinornis*; nevertheless, at the close of their communication the authors, as in their former paper, assert their belief that there is really such a relationship, and suggest the former existence of a southern land-connection to account for it. Perhaps when a complete description, with figures of the skull, sternum, and pectoral girdle, has been published, it may be possible to arrive at some definite conclusion concerning this interesting point.—C. W. ANDREWS, B. Sc., F.Z.S., in *Proc. Roy. Soc.*, Feb. 6, 1894.

The Fresh-water Algæ of Madagascar.—An important contribution to our knowledge of these lowly organized and, for the most part, minute forms of vegetable life, as existing in Madagascar, has been made in the shape of a quarto pamphlet of 50 pages, with 5 plates, containing more than 200 different figures. This pamphlet, included in vol. v. part 2, of *Transactions of the Linnean Society of London (Botany, 2nd Series)*, is entitled "A Contribution to our Knowledge of the Fresh-water Algæ of Madagascar. By William West, F.L.S., and George S. West, A.R.C.S., Scholar-elect of St. John's College, Cambridge."

The greater portion of the specimens described are from the neighbourhood of the Lake Alaotra; and the following table shows the Orders to which the specimens belong.

Summary of Genera, Species, and Varieties.

Orders.	Genera.	Species.	Varieties and Forms.
Coleochætaceæ	1	1	
Edogoniaceæ	2	5	
Zygnemaceæ	1	3	
Desmidiaceæ	12	145	32
Pediatreæ	1	4	1
Sorastreæ	2	2	
Eremobiæ	2	4	
Protococcaceæ	4	10	9
Rivulariaceæ	1	1	
Scytonemaceæ	1	1	
Sirosiphoniaceæ	1	1	
Oscillariaceæ	1	1	
Chroococcaceæ	2	3	
Total	31	181	42

The value of this collection thus made by my friend and co-editor Mr. Baron will be seen from the fact that a very large proportion of the specimens described are new to science, there being no less than 70 new species and 57 new varieties.

The bulk of the article consists of technical descriptions of genera and species, and would therefore be of no interest to the general reader, but the introductory remarks may be here quoted. The writers say:—

"By the kindness of the Rev. R. Baron, of Antananarivo, we have been

enabled to examine a number of gatherings of Algæ from that district, which he has most obligingly collected at the request of one of us. The result is very pleasing, as many new and interesting species have thus been revealed, and considerable additional knowledge of the distribution of known forms has been attained. The naming of the Diatoms has been left to a future occasion. The *Cosmaria* are particularly fine and noteworthy.

"It will be noticed that the larger Algæ are hardly represented; this is due to the fact that these tentative collections were made chiefly with the view of securing the smaller forms."

Without actual inspection of the plates it is difficult to give any clear notion of the various, remarkable, often strange, and frequently beautiful forms of these lowly organized plants, as revealed by the microscope.* The bi-lobed outlines of the *Cosmaria* in Plates vi., vii., and viii. are especially noticeable, and hardly less so are the stellate, triangular, and multangular forms of other species. It is difficult to believe that some of these remarkable organisms are plants at all; in many cases they are more like some beautiful shell, delicately and elaborately sculptured; while in others they take the form of a simple cell—round, oval, or triangular—often as if about to increase by fissure; while others again have curious processes, more like those of some grotesque polyp than anything belonging to the vegetable kingdom. These plates are additional illustrations of the wonders that lie hidden from ordinary observation in the mud of almost every pond and in the slime that gathers round almost every water-plant.—JAMES SIBREE (ED.).

Dr. Forsyth Major's Explorations in Madagascar.—A little over two years ago Dr. Forsyth Major, an enthusiastic palæontologist of high distinction, determined to undertake a scientific mission to Madagascar, mainly with a view to making a thorough examination of the fauna and flora, fossil and recent, of at least a portion of the island. The expedition received the support of the Government Grand Committee of the Royal Society, and the influence and interest of the British Museum were also secured. Dr. Major landed at Mānanjāra, on the east coast, a few months before the French expedition arrived at Tamatave, and made his way to Sirabè, four days' journey south of Antananarivo, where he remained for some months, chiefly occupied in excavating for fossil remains in the peaty, marshy deposits of the district. The unsettled state of affairs and the rising of the native population which followed the French occupation compelled the explorer's return to the Capital, where he was courteously received by General Duchesne. After a short stay at Antananarivo he resolved to return to Sirabè to continue his work, and eventually to explore the country as far south as Fianarantsoa. In very difficult and trying circumstances, Dr. Major succeeded in doing some solid scientific work. In July he resolved to come home, in order to work out the material which had been obtained, and arrived in London a few days ago, feeling none the worse after his arduous labours. During the whole of his stay in Madagascar he scarcely suffered from fever, notwithstanding the prevalence of a deadly epidemic of malaria, which had completely depopulated the country around Fianarantsoa, village after village through which the explorer passed being absolutely deserted. The collections have been deposited in the Natural History Museum, where they will in due course be examined by the members of the staff. It is, however, safe to assert that the Zoological and Palæontological Departments will be considerably enriched as the result of Dr. Major's mission, when we learn that the series of *Æpyornis* bones from the excavations in the marshes at Sirabè numbers about 1,500 specimens, from which more than one complete skeleton can be put together, and that

* The greater portion of these Algæ are shown in the plates as magnified 520 diameters, while in a few of the more minute forms, they are magnified 830 diameters.

the recent fauna of the island is represented by extensive series of skins. A very fine collection of specimens of the flora of Madagascar has also been made, among which the discovery of four orchids new to science may be mentioned. The island still offers a fine field for the scientific explorer in search of undiscovered species, but this may not be for long, since the French Government are preparing an expedition of some magnitude, at an estimated cost of 600,000 f., under the auspices of M. Milne-Edwards, of the Paris Museum, and M. Grandidier, who has already done so much for the scientific exploration of the island. - From *The Times*, Sep. 11, 1896.

A Costly Traveller's-tree.—"Mr. Chamberlain has sometimes paid a handsome sum for an orchid, but Miss Helen Gould, a member of the millionaire family, has, in the price she has just given for a palm, left the Colonial Secretary far behind. The plant in question is a palm, and the cost was £7,000. The palm was brought from Madagascar, and is a fine specimen of what is generally known as the 'Traveller's tree.' It is over 30ft. in height, and though it will not probably grow much more in that direction, it will spread out more. There are at present 10 long stems on it, of great thickness at the roots, but tapering considerably up to the leaves, which latter must be some 6ft. long. Miss Gould is a great cultivator of palms, and has in her famous conservatories many rare and valuable varieties."—From a *daily Paper*.

New Species of Mammals recently discovered in Madagascar.—In the last number of the ANNUAL (p. 381), a brief description was given by Dr. C. I. Forsyth Major of eleven new species of Insectivora and Rodentia discovered by himself in or near the Vakinankaratra district. In a recent number of the *Annals and Magazine of Natural History* (Oct. 1896), Dr. Forsyth Major gives a detailed description of nine species of small Mammalia he has discovered in the same locality and in the eastern forest region; four of these, however, are included in our last year's list;* the other five are as follows:—

LIMNOGALE, gen. nov. (Fam. *Centetidae*.) By the peculiarities of its osteology and teeth "this new genus is shown to be a member of the *Centetidae*; but it is as strikingly modified for aquatic life as *Potomogale* or *Myogale*." The head is short, broad, and flattened; toes webbed; tail powerful, very thick, and almost square near the body, the other part laterally compressed.

1.—*Limnogale mergulus*, sp. nov. Colouring of upper part of body brownish; lower parts a light yellowish-grey. Dimensions: head and body 128 millim.; tail 134; fore foot (without claws) 16.5; hind foot (without claws) 30. Basal length of skull, 32; greatest breadth of skull across brain-case 16.5; *Hab.* Imāsindràry, N.E. Betsileo, and a marsh west of Andraikiba crater-lake, two hours west of Antsirabè. Local name *Ivalavo* (i.e. water-rat).

2.—*Microgale Thomasi*, sp. nov. Externally very like *M. Cowani*, but much larger. Dimensions of type: head and body 97 millim.; tail 64, manus 11; pes 19; length of skull 25.5; breadth across maxillary processes 10.7. *Hab.* Ampitambe forest, N. E. Betsileo, and Ivohimànitra forest, Tanala, near Ambóhimanga.

3.—*M. Talazaci*, sp. nov. Closely related to *M. Dobsoni* in general external appearance, but much larger, and skin much darker, being dark coppery-brown. Dimensions of type: head and body 124 millim.; tail 119; manus 14; pes 23; length of skull 33.5; breadth across maxillary processes 13. *Hab.* Ikôngo forest, S.E. of Fianarantsoa.

BRACHYUROMYS, gen. nov. (Fam. *Muridae*.) "By their broad, moderately flattened, roundish heads, and comparatively short tails, these Rodents

* These are *Microgale longirostris*, *Oryzomys niger*, *O. gracilis*, and *Brachyu amirohitra*.

recall somewhat the Voles in outer appearance. Tail shorter than usual in Muridæ." Native names *Voalavo an-ala*, *Ramiròhitra*.

GYMNUROMYS, gen. nov. (Fam. Muridæ.) "Molars exceedingly small as compared with the size of the skull and the whole animal, forming two parallel rows in the upper jaw."

8. — *Gymnuromys Roberti*, sp. nov. Upper parts black-grey, almost slate-coloured; beneath white or yellowish-white. Tail scaly, almost naked. Ears large, acute oval; snout produced. whiskers very long (55-58 millm.). Dimensions of type; head and body 160 millim.; tail 165; manus 15; pes 34; ear 20; basal length of skull 35. *Hab.* Ampitambè forest. Native name *Voalavo an-ala*.

9. — *Chirogale Sibreei*, sp. nov. On the whole resembling *C. Mili*, but smaller, and presenting differences in the skull. Coloration of fur silvery-grey, with here and there a slight addition of fawn; beneath whitish. Dimensions of type: basal length of skull 42.5 millim.; breadth across zygomatic processes 31; length of nasals in middle line 19. *Hab.* forest near Ankèramadinika, 25 miles east of Antananarivo. — JAMES SIBREE (ED.).

VARIETIES.

M. Audebert's Travels in S.E. Madagascar.—In the ANNUAL for 1887, p. 107, there appeared an article by the Rev. L. Dahle, entitled "Geographical Fictions with regard to Madagascar," in which Mr. Dahle passed a rather severe criticism upon a paper which had appeared in the *Globus*, a German magazine, describing the travels of a M. Audebert in the south-eastern parts of the island. Mr. Dahle came to the conclusion, in which we shared, that the travels there described were partly, if not entirely, fictitious. From a letter received from our friend and contributor, Mr. J. G. Connorton, of Mānanjāra, it would appear that we were mistaken and passed too severe a judgment upon M. Audebert's narration. In view of the particulars given by Mr. Connorton, we have no option but to retract the opinions there given, and express regret for having passed too hasty a condemnation. Mr. Connorton's remarks are here given.—EDS.

"It may seem strange to revert to this subject now, but there appears to me to have been a great mistake somewhere. Both Mr. Dahle and you rather 'go for' Audebert and his article. Mr. Dahle says he believes the whole to be a fiction, and I think you rather endorse that opinion. On behalf of geographical research, I would like, if possible, to throw a little light on the matter. Of course it is not given to everyone to write Malagasy orthographically correct (as the present orthography stands). I know a man who has been twenty years in the island, and speaks Betsimisàraka like a native, but if put to write it, he would make a fearful hash of the spelling. M. Audebert was evidently not well up in Malagasy, and doubtless he made mistakes, as everyone is liable to do. To me his great error appears to be the direction in which he said he travelled; as regards this point he seems to have got, geographically, quite out of his bearings, otherwise I think his story is true. The voyage he made up the river was very feasible, and the towns and people he mentions exist, although not marked on any of the later maps, which are still far, very far, from being correct.

"Audebert was living on the south-east coast in 1879 and 1880, between Mâtitanana and Nôsikely, collecting specimens of natural history, and he was on the north-east coast also for some time. He was known to the older traders here, and the Malagasy have a distinct remembrance of 'Mosé Deberra' (Audebert). He went up the Mânambáto River and remained there several months. He cannot have got very far into the interior, as, by his own account, he only made 80 kilomètres, say 53 miles, roughly speaking, and was then but 4 kilomètres from the 'Voilakertra.

"It is this word 'Voilakertra' which seems to be the stumbling-block. It should be 'Vôhilakatra,' the name of a considerable tribe living inland in the forest. These forest people have different names all down the east coast. At Mâhandro they are called 'Vôhirimo;' at Mânanjára, 'Tanála;' at Vangaindràne, 'Mâvovôngo;' and at Fârafangàna, 'Vohilakatra.' They are well known to the Hova, and a portion of them do government service. Their neighbours on the east are the 'Sâkavoay' (called by Audebert 'Chavouai,' and roughly stated as being to the north of the Vohilakatra). Their neighbours on the south west are the 'Sâhafâtrana' (called by Audebert 'Chafatta,' and wrongly stated as being to the north of the Sakavoay). The Vohilakatra and the Sakavoay are often at loggerheads, and war is continually being carried on in the plains to the east of the Vohilakatra, for the simple reason, as Audebert says, that they, as a rule, get the best of it and naturally wage war in the enemy's country.* If, on the contrary, the Vohilakatra get the worst of it, they clear off to their principal town, Lâmbôhâzo, which is situated on a high hill in the forest.—J.G. CONNORTON."

A Curious Burial Custom in North Imârîna.—In the month of November, 1895, I made a tour through the northern part of the missionary district under my care (that connected with Anâlakely), in order to reassure the people, and to let them know that the political changes which had so recently occurred would not interfere with their religious freedom. After visiting the more distant villages I was on my way homewards on Saturday, Nov. 16th, but was still some ten or twelve hours' journey distant from Antanânarivo. I had left the old royal village of Ambôhitratankady, with its fine old-style houses of massive timber, early in the morning; and after making two visits to small villages on the route and encouraging the little congregations, I proceeded southwards over a high bare, and somewhat dreary country, all the more dreary then because the day was cold, with a thick drizzly rain. All along the roadside hereabouts there are considerable numbers of *ratolâhy*, or memorial stones, large rough slabs of gneiss rock, set up in remembrance of former inhabitants especially of those who had died in war expeditions, and whose bodies had not been recovered so as to be buried in the old family graves together with their ancestors and relatives. (This is considered by the Malagasy as a great calamity, far worse than death itself.)

Gradually getting on to the high moor I noticed, a mile or two ahead of me, by the roadside, a crowd of people, conspicuous on the dry grass by their white dresses. I immediately guessed that this must be a funeral, and thought that there would be another opportunity of speaking a word or two to a few more of the scattered sheep of my district. As I drew near to the group two or three men ran out from the others and asked me to come "and preach to the children and women." Of course I gladly accepted their invitation and, getting down from the palanquin, came up to the party, who numbered perhaps from 60 to 70. I immediately saw that it was not a funeral they were occupied with, as there were no signs of mourning—no soiled dress or women with dishevelled hair, etc.,—instead of which they were in their smartest dresses, while many of the women and girls had their hair

* 'War' among Malagasy tribes is, I imagine, usually a very small affair. Two or three get knocked over, and the rest clear off; see Walen on "The Sakalava," ANNUAL V. p. 13.

dressed in a special way, the ends of the numerous plaits being arranged in an open circular form, about as large as a crown-piece. I noticed that the great *vatoлахy* had been freshly smeared with fat, an old form of offering to the spirits of the ancestors at sacred places, and then conjectured that they must be engaged in some superstitious or half-heathen ceremony. I was not surprised at this, as there had been much returning to heathenism in many places during the past few months, and the people of the region I was then passing through were perhaps the darkest and most ignorant in the whole of my district. After saluting them, I proceeded to say a few earnest words upon the folly of idolatry, as shown even by their own proverbs, and briefly pointed out the way of salvation through the Lord Jesus Christ. They were perfectly polite and friendly, and thanked me for speaking to them, and as a heavy drizzle came on again, I wished them farewell and proceeded on my way. Before leaving, however, I noticed, as I was speaking, that a woman in the centre of the group had on her lap a model of a native house, of the old style, with high-pitched roof and crossed gable 'horns,' but covered all over with a thin greyish cloth. This model was perhaps eighteen inches square and about two feet high. I could not understand the meaning of this object, but resolved to make further enquiries.

On getting into Ambàtofisaorana in the afternoon, I mentioned to the native evangelist stationed there the incident of the morning, and asked him if he could explain what it was all about. He then told me that the people I met belong to a tribe called Zàfimàmy, who are the most ignorant and heathenish of all those under his care, and most difficult to teach. They appear to be somewhat recent immigrants into this part of the country and, like the Betsilèo (to whom perhaps they belong), do not live together in villages, like the Hova, but in scattered little homesteads or *vàla*, circular enclosures containing two or three houses, and surrounded with a thick hedge of prickly-pear and other thorny plants, just like what one sees all over the Betsileo country. He further told me that the gathering I met on the roadside was no doubt one in honour of an *andriana* or chief of the tribe, who had, only day or two since, killed himself for grief at the conquest of the country. (Suicide, by the way, is extremely uncommon among the Malagasy.) And he also said that the model house I saw is called '*tràno lândy*,' i.e. 'silk house,' and is deposited at the foot of the memorial stone as a kind of home for the spirit of the dead person, somewhat for the same purpose as the small wooden houses called *tràno màsina* and *tràno manàra* are erected over the tombs of royal and noble personages, as a dwelling for their spirits. I was not therefore greatly mistaken in my suspicions as to the heathen character of the proceedings I witnessed. Later on in the day, I was told, there would be killing of oxen and feasting, with probably a good deal of drunkenness and other evil things. I then remembered that some six or seven years ago, when first travelling home by this route, I had noticed a small neatly-made model of a native house, but made of clay, placed at the foot of one of the upright stones, and had wondered what could be the meaning or purpose of it. I had now no doubt that it was made for the same object as the *tranolandy* I had seen that morning. It is, after all, but one of many proofs of how great a hold these old superstitions still have over the minds of the less instructed Malagasy.—JAMES SIBREE (ED.).

An Ancient Royal Tomb.—The old royal town (now nothing more than a small village) of Ambòhidrabiby, about 10 miles north of the Capital, is famed as being the home and also the burial-place of one of the most renowned ancient kings of this part of Imèrina, Ralàmbo or Rabiby. About him some strange legendary beliefs have clustered in the course of generations. He is supposed to have been the first who found out that beef was good to eat! He is said to have killed an enormous wild-boar (*làmbò*), the terror of the country all around, and was therefore named after it; and from him all Hova sovereigns

must be able to trace their descent. He probably lived from 200 to 300 years ago. In the enclosure of the old *rdva* or royal courtyard, on the summit of the Ambohidrabiby hill, I have often noticed a rough heap of stones, which, I was interested to learn, marked the grave of the old Hova king. By its simplicity and roughness, it speaks of a ruder age, before the introduction of the more elaborate stone tombs, and wooden houses surmounting them, which have, for a hundred years past at least, been erected in memory of the kings and chiefs of Imerina. During the unsettled times which preceded the French occupation of the interior, this old tomb was broken open by some thieves, and a quantity of money stolen from it; and it was then seen that it consisted of a chamber below ground formed by thick timber planking, much like the old-fashioned Hova houses called *trano kdtana*, which are made of a massive wooden framing and upright planks of red-wood or *vdambiana*. This it would appear, was therefore the primitive style of royal tomb among the Hova, before the stone chamber employed in a later age was introduced. — JAMES SIBREE (ED.).

Mouth-gestures.—Professor A. R. Wallace, in an article on “The Expressiveness of Speech” (*Fortnightly Review*, Oct. 1895), speaks of the commonness of mouth-gestures among barbarous peoples. “My attention,” he says, “was first directed to this subject by noticing that when the Malays were talking together, they often indicated direction by pouting out the lips. They would do this either silently, referring to something already spoken or understood, but more frequently when saying *disàna* (there) or *itu* (that), thus avoiding any further explanation of what was meant.” To those who know the commonness of this habit among the Malagasy, this resemblance to the Malayan practice will be another of the many subtle links of evidence connecting them with the Malayo-Polynesian races.

Is the Malagasy mode of beckoning by a downward motion of the hand also Malayan? The use of the hands more than the feet in dancing is distinctly so. — W. E. COUSINS.

Note on an Ancient Tomb in Antsihansaka.—At Ivòhitsivalana, a village close to Imerimandroso, on the east shore of the Alaotra lake, there is an ancient tomb with somewhat unusual accessories. The town itself is nothing out of the way, neither are the usual Sihànaka *jìro*, or long poles, forked at the end, which are erected near it. There are, however, to the east and west of the tomb, two figures of men, carved in wood, one having a long beard, and hair plaited somewhat in the same way as the Sihànaka wear it. Opposite these two, to the south, and forming the corners of a square with them, are the figures of two females, one with the hand holding up the chin, the elbow stuck outwards. All four figures are represented as sitting on the tops of short poles, with their knees drawn up, and the workmanship is much dilapidated and weather-worn. The same may be said of what is the more interesting and remarkable piece of carving standing in front of the tomb. It is about 6 ft. high, 10 or 12 in. wide, and 1 in. thick. Whilst taking a sketch of it, a man standing beside me remarked that now-a-days they were *madinika* (small), and consequently unable to make such remarkable ornaments for their tombs. By this expression, I suppose he meant that their former ability and inventive powers had greatly decreased. — J. G. MACKAY.

African and Malagasy Games.—“*Mangala*, also called *Miveso*, is the only game, properly so called, which the Wagànda know. It is played by two people upon an oblong board containing thirty-two holes in four rows of eight each, the players having a certain number of counters, which may be either stones, beads, or coffee-berries. Each player places a certain number of counters in his two rows of holes, and the game, which is a very complicated one, and requires a considerable amount of calculation, consists in trying to obtain all the stones belonging to the opposite player. The counters are

redistributed in turn, and, on stopping at a hole, a player may, under certain conditions, take the opponent's counters out of the two holes opposite. It is a most fascinating game, and the people will sit for hours playing at it. It is so difficult, however, that I was not able to learn how to play it myself. It is probably not a native game but may have been introduced from the east coast, where a somewhat similar game called *Bao* is played by the Arabs and the Suahely."

The above is a note in the Appendix (p. 519) of *Emin Pasha in Central Africa*. Judging from the description, the game is somewhat, if not exactly, the same as that known as *Kātra* by the Malagasy, a game quite different from the *Fanòrona*. Are these various games of Arabic origin?—R. B. (ED.)

Wood Carving and other Ornamentation.—The art of decorating and carving is practised more or less throughout Madagascar. The Bètsilèò seem to be more elaborate in their designs than any other of the Malagasy tribes; this is shown especially by their carved house-pillars and numerous memorial posts. There are also some very elaborate pieces of work to be seen among the South Sàkalàva, and in the Mánantsóa district of the Antanósy. This carved work in the south and west is always used in some connection with the dead, either as memorial pillars, or taking the shape of an ornamental and decorated fence around the grave. The memorial pillars among the Antanosy are carved in a variety of forms; sometimes full-sized figures of men and women are set up on pedestals some 4 or 5 feet high. In other cases the memorial takes the shape of an obelisk placed on a pedestal some 4 or 6 feet high, on which a number of birds and symbolical animals, as the crocodile or cattle, are carved, and invariably a wooden bird is placed on the top of the obelisk. Examples of primitive carving are seen almost everywhere in Madagascar, in the peculiar devices and ornamentation given to the people's wooden spoons, and the elaborate zigzag and other patterns worked on their earthen cooking- and water-pots. Sticks also and pieces of bamboo, serving as snuff-boxes are often covered with zigzag patterns and outline sketches of men, birds, crocodiles, and other objects. This kind of ornamentation also comes into their weaving and cloth-making operations. I have a fine cloth made by Timpy, the wife of king Befanatriky, on the borders of which both oxen and crocodiles are represented.—J. T. LAST; in *Journ. Anthropol. Inst.* Aug. 1896; p. 70.

The word 'Biby.'—The word *biby* (which in Hova Malagasy means 'animal,' 'beast') is used in a rather curious manner among the Sakalava of the north west and west coasts of Madagascar. The word is most probably the Swahili *bibi*, meaning 'grandmother,' 'lady or mistress' (used by slaves), a name of honour. It is the custom amongst some of the Sakalava queens to take for a husband a young man from the Swahili-Arab population. This young man receives the title of '*biby*,' and is subject to certain rules similar to those which bind the wife of an influential Arab or Swahili. He is not supposed to go out of the house in the day time, or to be seen by the people generally. When he goes out in the evening, or on a visit to another place, he is always accompanied by three or four female slaves, who keep about him much in the same manner as if they were waiting on a lady. Amongst other rules, he bound to remain faithful to the queen; should he violate the marriage contract, the penalty is death. The queen of Katsepy, a Sakalava district opposite Mojangà, is married in this manner, and has an Antalaotsy man for her *biby*. I do not think this name is given to the queen's husband, should he be a Sakalava, nor do I think the word is used in reference to any of the Sakalava chiefs and their wives, by the Sakalava; though the Swahili-Arab population would naturally apply the term to the wives of the Sakalava chiefs, or in fact, to any woman whom they wished to please.—J. T. LAST; in *Journ. Anthropol. Inst.*; Aug. 1896; p. 66.

A Glimpse at the Ancient Animal Life of Madagascar.—"Let us try to sum up in a few sentences the results of recent research on the ancient animal life of the island. It seems probable that Madagascar, when the first representatives of mankind occupied it, was a country much more fully covered by lakes and marshes than it is at present. In these waters, amid vast cane-brakes and swamps of papyrus and sedge, wallowed and snorted herds of hippopotami; huge tortoises crawled over the low lands on their margins; tall ostrich-like birds, some over ten feet high, and others no larger than bustards, stalked over the marshy valleys; great rails hooted and croaked among the reeds, and clouds of large geese and other water-fowl flew screaming over the lakes; on the sandbanks crocodiles lay by scores basking in the sun; great ape like lemurs climbed the trees and caught the birds; troops of river hogs swam the streams and dug up roots among the woods; and herds of slender-legged zebu-oxen grazed on the open downs. These were the animals which the first wild men hunted with their palm-bark spears, and shot with their arrows tipped with burnt clay or stone.*

"And as we look further back through long past geological ages, when the clays and sandstones of the Oolite, and the white masses of the Chalk were being deposited in the coral studded tropic seas and archipelagoes of Europe and other parts of the world, and when Madagascar was probably no island, but a peninsula of Eastern Africa, the mist opens for a moment, and we see vast reptile forms dimly through the haze: great slender-snouted Gavials in the streams and lakes, and huge Dinosaurs, sixty to eighty feet long, crawling over the wooded plains, and tearing down whole trees with their powerful arms.

"Such are some glimpses of the Madagascar of the past which the study of its rocks and fossils already opens to the mental eye. We may confidently look for further light upon the dim and distant by-gone ages as we learn more of the geology of the country. The thick curtain which at present shrouds the old-world times will be yet more fully lifted, and we shall probably, ere many more years have passed, be able to draw many more mental pictures of the extinct animal life of the great African island."—*Madagascar before the Conquest*, p. 381.

* The Vazimba, the supposed earliest inhabitants of the interior, are said to have not known the use of iron, but to have had spears made of the hard, wiry bark of the Anivona palm, and to have employed arrow-heads made of burnt clay. No flint weapons have yet been discovered in Madagascar.

THE MAMMALS OF MADAGASCAR :

MALAGASY ANIMALS ARRANGED ACCORDING TO THE NATURAL
ORDERS, WITH NOTES ON THEIR HABITS AND DISTRIBUTION.
PART III.*

CHAPTER V.—SUB-ORDER LEMUROIDA (concluded) ;

FAMILY CHEIROMYIDÆ : THE AYE-AYE.

IN two previous numbers of the ANNUAL (XVII. and XIX.) the numerous species of Lemur inhabiting Madagascar have been described, according to their arrangement in the genera *Propithecus*, *Avahis*, *Indris*, *Lemur*, *Hapalemur*, *Lepilemur*, and *Cheirogaleus*, etc. There is, however, still one animal belonging to the sub-order of Lemuroida, or Lemur-like animals, viz. the Aye-aye, which remains to be noticed ; and as it is in many respects the most remarkable of all the members of the sub-order, this chapter will be devoted to it. In various numbers of the ANNUAL several notices have already appeared describing the habits and structure of the Aye-aye ; but as I wish to make this series of papers on Madagascar Mammals as complete as possible, it will be well to include all this scattered information in the present chapter, so as to give at one view all that is at present ascertained as to this very curious animal.

The Aye-aye (*Cheiromys madagascariensis*). Like many of the birds of Madagascar, and like the *Cryptoprocta* among the Carnivora, the Aye-aye forms the single species of a single genus, which is again the sole genus of a family which has had to be formed for this one animal ; it is therefore one of the many examples which the island presents of isolated forms, telling us unmistakeably of high antiquity and long separation from other living animals of the sub-order, to which it has only very distant relationships. And although classed among the Lemuroida, it differs, as will appear, in some important points of structure from all the Lemurs.

The Aye-aye was first seen in the year 1780 by the French naturalist Sonnerat ; and in the first year of the present century it was described by Cuvier, who, on account of the structure of its teeth, considered it as allied to the Squirrels. For eighty years following Sonnerat's discovery nothing further was ascertained about the Aye-aye, but in the year 1860 a specimen was obtained by Dr. Sandwith and forwarded (in spirits) to Sir Richard Owen, who gave a minute description of its structure, with several plates, in his *Monograph on the Aye-aye* (London : 1863). Subsequently living specimens have been sent to Europe, and careful observations were made for several months upon the habits of one in the Regent's Park Gardens by Mr. A. D. Bartlett, the Curator.† Other information has been collected by the Revs. R. Baron and G. A. Shaw as to the habits of the animal, as observed in its native forests by intelligent natives ; so that we now know a good deal about the Aye-aye, although certain points are still obscure.

* Continued from ANNUAL XIX. p. 280.

† "Observations on the living Aye-aye in the Zoological Gardens ;" *Proc. Zool. Soc.* 1873.

First then, as regards its size and appearance. The Aye-aye somewhat resembles a large cat in size, being about three feet in total length, of which its large bushy tail forms rather the longer half. Its likeness to a cat is further increased by its round head and large ears, which, however, are larger in proportion than those of a cat. But the feet are very different, being those of a true quadrumanous animal, and are hands rather than feet. The middle finger of each fore-hand is curiously slender, looking as if it were atrophied or wasted. The fur is long and is composed of a mixture of long stiffish hairs, with an under coat of thicker and shorter hair. The colour is dark-brown, the under parts showing a rufous tinge, the throat being yellowish-grey. A somewhat silvery look is given to the fur in certain lights by the presence of many whitish hairs on the back.

The whole organization of the Aye-aye presents one of the most striking examples known of animal structure modified to serve special ends. Its food, according to Dr. Sandwith's account of its habits when newly caught, consists of wood-boring larvæ, which tunnel beneath the bark of certain hard-wooded trees. To obtain these, the creature is furnished with very powerful chisel-shaped teeth, with which to cut away the bark and the wood. As, however, the larva retreats for safety to the end of its hole, the middle finger of each of the Aye-aye's fore-hands is considerably diminished in thickness, so as to act as a probe. Thus provided, the finger with its hook-like claw is inserted in the tunnel, and the dainty morsel drawn from its retreat; and so the animal obtains, at least in certain conditions and seasons, the bulk of its food.

There are also other modifications of structure, all tending to the more perfect accomplishment of the purposes fulfilled by this little creature in the order of Nature: the eyes being very large, so as to see by night, for it sleeps by day; the ears expanded widely, and of delicate membrane, to catch the faint sound of the caterpillar at work; and the thumbs of the hinder hands being largely developed to take firm hold while working. Dr. Sandwith also observed that the probe finger is used as a scoop when the Aye-aye drinks; being bent so as to separate it from the other fingers, it is carried so rapidly from the water to the mouth, passing sideways through the lips, that the liquid seems to pass in a continual stream.

Another observer has also pointed out a remarkable fact in the structure of the lower jaw of this animal, namely, that the two sides are only joined together by a strong ligament, and do not, as in most other animals, form one connected semicircle of bone. They play easily in a vertical direction, independently of each other, and when the animal is gnawing, alternately. This accounts for the prodigious power of gnawing that the Aye-aye possesses. It was seen to cut through a strip of tin-plate nailed to the door of its cage. As this power is added to the usual vertical and lateral motion of the lower jaw, its effect is not astonishing. From this strong gnawing power, the Aye-aye was at first classed by Cuvier and Buffon among the Rodentia, but it is now determined to be an exceedingly specialised form of the lemuroid type. "Thus," says Sir Richard Owen, "we have not only obvious, direct, and perfect adaptations of particular mechanical instruments to particular functions—of feet to grasp, of teeth to erode, of a finger to probe and

extract—but we see a correlation of these several modifications with each other, and with adaptive modification of the nervous system and the sense organs: of eyes, to catch the least glimmer of light, and of ears, to detect the feeblest grating of sound; the whole determining a complex mechanism to the perfect performance of a particular kind of work.”

The Malagasy living in the eastern forests and coast plains have a superstitious dread of the animal, believing that any person who kills an Aye-aye will die within a year. This fear, added to the nocturnal habits of the creature, has made it difficult to obtain specimens. As regards the habits of the animal in captivity, information was obtained at the Zoological Gardens by Mr. A. D. Bartlett, in some points curiously differing from Dr. Sandwith's observations. The animal, a female, slept during the day, the body curved and lying on the side, while the tail was spread out and flattened over it, so that the head and body were almost covered by it. Only at night did it show activity, crawling about and gnawing the timber of its cage, but showing no uneasiness at the appearance of a light, indeed trying to touch it with its long fingers. It often hung by its hind legs, and in this position would clean and comb the tail with a rapid motion of its hook-like finger, in this action much resembling some of the Bats.

In feeding, the left hand only was used, and from its rapid movement it was difficult to observe it closely, but the peculiar middle finger was raised so as not to touch the food. This Aye-aye showed no inclination to take any kind of insect, but fed freely on a mixture of milk, honey, and eggs, or on any thick, sweet, glutinous fluid, rejecting meal-worms, grasshoppers, larvæ of wasps, etc. From this fact Mr. Bartlett is disposed to think that the animal cannot be carnivorous; but from its possessing such large and powerful teeth, he infers that it may perhaps wound trees, and cause them to discharge their juices into the cavity made by its teeth, and that upon this fluid it possibly feeds. He thinks this supposition confirmed by the fact that the Aye-aye frequently returned to the same spot on the tree which she had previously injured. Other habits in feeding seemed to strengthen this view, since the animal paid little attention to its food, and did not watch or look after it, continuing to thrust out its hand for a while after the vessel containing the food was removed. This apparently stupid act is so unlike the habits of an animal intended to capture and feed on living creatures, that Mr. Bartlett believes that its usual food consists of inanimate substances. He frequently saw it eat a portion of bark and wood after taking a quantity of its fluid food.

The facts noted by two such careful and scientific observers seem to differ so much on important points that they raise the question whether there may not be more than one species of Aye-aye, or whether the food of the female may not differ, at certain times at least, from that of the male. Possibly, however, the explanation is to be found in the fact that none of the insects of England which were offered to the Aye-aye were suitable to its tastes. It therefore preferred another kind of food to starvation, and ate bread, eggs, and honey with milk; for its native habits and food in the woods of Madagascar declare plainly its office as a check upon the undue prevalence of tree-destroying xylo-

phagous larvæ. "Had the Aye-aye possessed an indiscriminate appetite for insects, it would satisfy such appetite on much easier terms than by gnawing into hard wood for a particular kind of grub." But, as testified by a French observer, it has by no means an equal liking for all species of larvæ, but distinctly chooses certain kinds; and Dr. Sandwith specifies its favourite food as the destructive *monterck*. The restriction of its likings to the wood-boring kinds was therefore necessary to insure the complete use of all the wonderfully adapted parts of its organisation.

According to M. Soumagne, the Aye-aye constructs true nests in trees, which resemble enormous ball-shaped bird's nests. He found them in a belt of forest inland from Tamatave. They were composed of the rolled-up leaves of the Traveller's-tree (*Urania speciosa*), and were lined with small twigs and dry leaves. The opening of the nest was at the side, the nest-being lodged in the fork of the branches of a large tree. In this nest building habit the Aye-aye resembles the lower lemuroid animals.

Mr. Baron gives some other particulars about this animal, derived from enquiries among the natives; he says:—

"The Aye-aye lives in the dense parts of the forests, and builds a nest two or three feet in diameter; in it the creature sleeps the whole day, prowling about in quest of food at night only. Its cry is "*Haihay, haihay*," hence by onomatopœia its native name is *Haihay*, and hence also its English name "Aye-aye." The male and female, which have but one young one at a time, accompany each other in their nocturnal wanderings. The long claw is used in searching for insects beneath the bark of trees, and in dragging them out when found. A small white insect called *andraitra*, probably the larva of some beetle, forms the creature's chief food. When searching for this *andraitra*, the Aye-aye taps the trees with its fore-feet, and then listens for any movement below, in order to discover whether there are any insects beneath the bark, thus saving itself useless labour.

"Notwithstanding the superstitious dread of the Malagasy for the Aye-aye, a few of the bolder spirits among them sometimes go in search of it, but those only who know the secret by which they can disarm it of its bewitching and fatal power. Occasionally it is caught by mistake in the traps set for Lemurs; when so caught, the owner of the trap smears grease on the animal and sets it free again, thereby securing its good-will, and himself from harm. It does not flee at the sight of man, thus showing that for generations it has had nothing to fear from him. The story goes that when a person sleeps in the forest, the Aye-aye occasionally brings a pillow for him; if a pillow for the head, the person will become rich; if for the feet, he will become bewitched. To most of the people no amount of money would be a sufficient inducement to go in pursuit of the creature. Occasionally it is taken to Tamatave, where it realises from ten to fifteen dollars. In Carpenter's *Zoology* the Aye-aye is said to be very rare, even in its native country; and Mr. Gosse, in one of his books, thinks that it is probably nearly extinct. But from what I gathered from the natives, it seems to be pretty common; its nocturnal habits, and the superstitious fear of it on the part of the natives, accounting for its apparent rarity.

"As for the habitat of the Aye-aye, so far as I am able to judge from personal enquiries and observations in different parts of the island, I should be inclined to think that the dense parts of the great forest between the Antsihànaka and Bêtsimisàraka provinces form its chief, if not only home."

Since the foregoing was written a specimen of a male Aye-aye was obtained by Mr. Wills from the upper belt of forest to the east of Imèrina. Hitherto it had been believed that the animal was confined to the lower and hotter forest region of the country, but it appears to have a wider range than was formerly supposed to be the case.

Still further information as to the Aye-aye is given by Mr. G. A. Shaw, F. Z. S., who, during several years' residence in the island, has taken great interest in its zoology, and has also made careful enquiries as to the habits of this animal. Mr. Shaw, it will be seen, differs in opinion from Mr. Baron as to the origin of its name, and says:—

"This curious animal has evidently been named from the exclamations of the people who first saw it, and who, upon seeing anything so peculiar, would naturally utter the usual Malagasy exclamation of surprise, "*Hay! hay!*" And to the present day among the people it is called *Haihay*. The words were rendered probably by some Englishman who forgot he was out of England, or else, hailing from London, had the proverbial contempt for the *h*.

"With reference to its natural food, no satisfactory explanation can be obtained from the people. Many assert positively that it lives on honey, but one I had in captivity for several months would not eat honey in any form. I tried to induce him to eat it alone, both strained and in the comb, as well as mixed with various things I thought it might have a fancy for, but to no purpose. Others say it lives on fruits and leaves; others that it feeds on birds and their eggs. I fancy from what I saw of my captive that both these conjectures are near the truth. For after a few days, during which it would eat nothing, and it was thought that the proper food had not been offered, while in reality, it was pining or sulking, it took to several fruits which were procurable at the time. It liked bananas, but made sorry efforts at eating them, the teeth being so placed that its mouth was frequently clogged with the banana. The small fruit of several native shrubs it also took greedily. But meat, large moths, beetles, butterflies, and eggs, it would not touch. But I noticed that when I came near to its cage with a light, it almost invariably started for a little distance in chase of the shadow cast by the pieces of banana attached to the wire-work of the front of its cage; and I thought that if some small birds could have been procured, it would have, if not devoured them, at any rate have killed them for their blood, as some Lemurs are known to do. It drank water occasionally, but in such a way as to make it highly probable that it does not drink from streams or pools in its natural state. It did not hold its food in its hands, as Lemurs I have in captivity do, but only used its hands to steady itself on the bottom of its cage, pointing to the probability that its natural food is small. Whenever it had eaten, although it did not clean its hands, it invariably drew each of its long claws through its mouth, in the empty space between the incisor and molar teeth, as though in a wild state these had taken the chief part in procuring its food.

"In some accounts given by various writers it is said to be 'easily tamed,' and 'inoffensive.' For instance, Sonnerat, who kept two in captivity, says it is 'timid, inoffensive, and slow in its movements, in these respects resembling the Loris.' In each of these qualities, except the timidity, I have found, both from native accounts and from the specimen I have kept, that exactly the reverse is the case. It is very savage and, when attacking, strikes with its hands with anything but a slow movement. Its teeth, which led Cuvier to place this singular animal among the Rodentia, are very curiously arranged. The two pairs of incisors are very long and strong, and are separated by an empty space from the molar teeth. It has no canine teeth, like many of the Lemurs. The jaws are very large and powerful. No wooden case is sufficiently strong to hold it, as in a single night it can gnaw away a hole large enough for its exit. Even in the strong tin-lined case in which mine was confined, it was able to insert its teeth in the joints of the tin, and tear good-sized holes. When biting at the wire netting in the front of its cage, I noticed that each of the pair of incisors (whether upper or lower) could separate sufficiently to admit the wire even down to the gum, the tips of the teeth then standing a considerable distance apart, leading to the supposition that by some arrangement of the socket of the tooth, it could be moved so far without either breaking off, or giving any pain. The female never brings forth but one at a birth, in which the claw is fully developed.

"It is no wonder that in connection with so curious an animal a number of superstitious beliefs should be current among the Betsimisaraka. In reference to its name, one account says that 'the first discoverers took it from one part of the island to another, the inhabitants of which had never seen it; in their surprise they exclaimed 'Aye! aye!' (or rather 'Hay! hay!') Another account says that many years ago some Betsimisaraka had occasion to open an old tomb in which one of their ancestors had been buried. No sooner was the tomb opened than an animal, into which the said ancestor had developed, sprang out, and hence the exclamation of surprise that has attached itself as a name to this creature. Many Betsimisaraka still believe that the *Haihay* is an embodiment of their forefathers, and hence will not touch it, much less do it an injury. It is said that when one is discovered dead in the forest, these people make a tomb for it, and bury it with all the forms of a funeral. They think that if they attempt to entrap it they will surely die in consequence; and when I have said to some of them: 'But there is So-and-so, who has brought several into Tamatave, and nothing has happened to him,' the answer has been: 'Yes, but he has its charm,' that is, the charm which counteracts the evil consequences of the act. Their superstition extends even to the nest which the animal makes for itself. If a man receives from another, or picks up accidentally, the portion on which the head of the *Haihay* rested, it is sure to bring good fortune; while the receiving of the portion on which its feet rested is followed by bad luck, leprosy, and death. This has even passed into a proverb among the Betsimisaraka."

JAMES SIBREE (ED.).

(*'Madagascar Mammals' to be continued.*)

LITERARY NOTES.

New Books on Madagascar.—*Two Campaigns: Madagascar and Ashantee.* By BENNET BURLEIGH, War Correspondent of the *Daily Telegraph*. London: 1896; pp. 2, demy 8vo, with 50 Illustrations.

Madagascar in War-time. 'The Times' Special Correspondent's Experiences among the Hovas during the French Invasion of 1895. By E. F. KNIGHT. London: 1896; pp. 336, demy 8vo, with Map and 16 Illustrations.

The two volumes named above consist in the main, of the letters written by the two authors for the papers they represented. They contain much graphic description, and will possess permanent value, as giving from the stand-point of the trained newspaper correspondent an account of the last days of Hova rule. There is much that is not pleasant reading for the friends of the Hova, and something might perhaps be said here and there to qualify the unfavourable representations. But on the whole, it must be confessed, the sad and miserable story of dissension, incompetence, and cowardice is undoubtedly true. These writers, being but passing visitors, could only see the mere surface of things, and their judgments as to native character are not of great value. They saw much that disgusted them; but they failed to see the better side of the Hova character, which does undoubtedly exist. Missionaries are not so wanting in penetration as to fail to see the faults of the people among whom they live; but through long residence and familiarity with the people, and constant intercourse with them, they get to know them in a way impossible to mere visitors; and in spite of all failings in their native friends, they see much to appreciate and admire; they also learn to make large allowances for people who have lived under such a corrupt form of government. Mr. Knight writes with a strong *animus* against the London Missionary Society, so much so, in fact, that one of the daily English papers began a review of his book with the exclamation: "What has the London Missionary Society been doing to Mr. Knight?" Missionaries of that society may therefore accept with all the more confidence some of the very high praise he bestows upon the general results of their work. The main value of these two books consists in the fact that they give us such a graphic account of the last days of a system of government that had lived its day, and was not able to adapt itself to the changes in the circumstances of the people caused by the discovery of gold, and the impossibility of any longer preventing the influx of Europeans.—W.E.C.

Madagascar before the Conquest: The Island, the Country, and the People. London: 1896; pp. 382, demy 8vo, Map and 16 Illustrations; by REV. JAMES SIBREE.

"A most engrossing volume on a place and people of which not much is generally known. These pages are vivid with the touches of an artist, who presents the humours of a situation as graphically as he portrays a landscape or describes a town. There is scarcely a page in the volume which has not some point of interest for all."—*Dundee Advertiser*.—"This work deals with the face of the country and the life of the people, as they can only be known by one who has watched them for years in various parts of the land."—*Daily Chronicle*.—"I would congratulate Mr. Sibree upon his volume. The illustrations, some of them of great beauty, add to the attractiveness of the production; and the French map, which forms the frontispiece, is considered the best extant."—*African Critic*.

Reprint of Second Volume of Antananarivo Annual (Nos. v.—viii., 1881-84; pp. 424; Antananarivo; L. M. S. Press; 1896.—*Madagascar*; Paris et Nancy: 1895; by G. HUMBERT.—*Le Commerce et la Colonization à Madagascar*; Paris: 1894; pp. 381, 12mo.—*Les Droits de la France sur Madagascar*; Paris: 7½ in. x 5 in. pp. 272; par REV. PIERRE PIOLET.—*Ce qu'il faut connaître de Madagascar*; Paris: 12 in. x 8 in. pp. 110; Cartes et Illustrations; par E. CAUSTIER et autres.

The following portions of M. GRANDIDIER's great work, *Histoire physique, naturelle et politique de Madagascar*, have been issued during the past year:—*

Histoire des Mammifères (comprenant les Haplemurs et la fin des Lemurs propres); atlas, 4e partie (la dernière partie) du tome ii. et comprend 161 planches. Paraitra sous peu la 1er partie du tome iii. de l'atlas des Mammifères (qui comprendra les Lepilemurs), par MM. A. MILNE-EDWARDS, GRANDIDIER, et FILHOL.

Histoire des Orthoptères (Blattides et Mantides), qui comprend 224 pages de texte, et 10 planches coloriées, par MM. H. DE SAUSSURE et ZEHNTNER.

Histoire des Myriapodes, par M. H. DE SAUSSURE (en Janvier 1897).

* I am indebted, as before, to M. Grandidier's courtesy for these particulars; and I have also to thank him for the titles of numerous new books and articles in the French language, which are given in these "Notes."—J.S. (ED.)

Histoire des Plantes, par M. EMM. DRAKE DEL CASTILLO ; atlas, la 5e et dernière partie du tome iii., avec 52 planches.

Le Général Duchesne et l'Expédition de Madagascar ; Rouen : 1896 ; pp. 222, 8vo ; par FR. BENN.—*Notre Campagne à Madagascar* ; Paris : 384 pp. 4to ; par CAP. DE CORLAY.—*La Guerre à Madagascar, Histoire anecdotique de l'Expédition* ; tome i. 8vo ; par GALLI.—*Madagascar* ; pp. 142, 8vo ; par MARCEL PAISANT.—*L'Afrique de Madagascar* ; pp. 308, 12mo ; par G. HANOTAUX.—*La Guerre à Madagascar* ; pp. 108, 18mo ; par DE RIOLS.—*Madagascar et sa Richesses* ; pp. 189, 12mo ; par P. LOCAMUS.—*L'Alsace-Lorraine et Madagascar*, brochure ; par H. BEAUBOURG.

Papers and Pamphlets: English.—J. T. LAST : "Notes on Western Madagascar and the Antinossi [Antanòsy] Country ;" *The Geographical Journal*, Sept. 1895 ; pp. 227-252, with Map ; also "Notes on the Languages spoken in Madagascar ;" *Journ. Anthropol. Inst.* No. 25, 1895 ; pp. 46-71.—WILLIAM WEST, F.L.S., and GEORGE S. WEST, A.R.C.S. : "A Contribution to our Knowledge of the Fresh-water Algae of Madagascar ;" *Trans. Linn. Soc. (Botany)*, 2nd ser., vol. v., pt. 2.—REV. W. E. COUSINS : "The Recent War in Madagascar and some of its Consequences ;" *Miss. Rev. of World*, June, 1896 ; pp. 422-431.—"Catholicism and Madagascar ;" *Catholic World* ; Jan. 1896.—"The French in Madagascar ;" *Quar. Review*, 1896, with Maps ; pp. 245-269.—HON. WALTER ROTHSCHILD : "A new Species and Genus of Rollers ;" *Novitates Zoologicae*, Dec. 1895, vol. ii. ; with Illustration in vol. iii. 1896 ; see p. 468, *ante*.—REV. J. SIRREE : "The Situation in Madagascar : Present Position and Prospects of Christian Work ;" *New York Inqtr.*, May 1896 ; also, "A Sunday in Antananarivo ;" *Ibid.* Nov. 1896.—DR. C. I. FORSYTH MAJOR : "Diagnoses of new Mammals from Madagascar ;" *Ann. and Mag. Nat. Hist.*, ser. 6, vol. xviii., Oct. 1896 ; pp. 311-325 ; also, "Ueber die malagassischen Lemuriden-Gattungen *Microcebus*, *Opolemur*, und *Cheirogale* ;" *Novitates Zoologicae*, vol. i., Jan. 1894 ; pp. 28-31.

Foreign.—B. GAUBERT : "Notre Carte de Madagascar ;" *Rev. Geogr.* No. 35, 1895 ; pp. 388-392, with war-Map.—"Le Sol et le Climat de Madagascar au point de vue de l'Agriculture ;" *Rev. Scientifique*, No. 4, 1895 ; pp. 107-112.—M. NOGUES : "La puissance maritime de l'Angleterre et l'importance de Madagascar."—G. VASCO ; "Madagascar : les forêts, le caoutchouc—Chronique de l'expédition ;" *Rev. française*, No. 20, 1895 ; pp. 625-649, avec Cartes et profils.—H. MAGER : "Les peuples de Madagascar ;" *Bull. Soc. Normande Geogr.* No. 17, 1895 ; pp. 57-75, avec Carte.—A. MARTINEAU : "Madagascar : Conférence faite à la Société ;" *Bull. Soc. Geogr. de l'Est* ; pp. 123-145.—DR. C. SPIELMANN : "Madagascar ;" *Aus allen Weltteilen*, No. 27, 1895 ; pp. 49-54, 119-124 ; 1896, 153-158, 177-182.—ED. BUREAU : "La Flore de Madagascar ;" *Rev. Scientif.* No. 1895 ; pp. 225-234.—A. GRANDIDIER : "Madagascar il y a cent ans ; les Voyages de Mayeur ;" *Rev. Scientif.* No. 5, 1896 ; pp. 552-557.—MARCELLIN BOULE : "Notes sur les Fossiles rapportés de Madagascar par M. E. Gautier ;" *Bull. Mus. Hist. Nat.* 1895, No. 5, pp. 7.—DR. FERNAND DELISLE : "La Colonization à Madagascar ;" *Rev. Scientif.* No. 5, 1896 ; 457-466.—G. KURZE : "Reisen norwegischer Missionare in Madagascar : I Missionar Th. Selmers Reise durch das nördliche Tanalagebeit II. Missionar P. Nilsen-Lunds Reise durch das mittlere Sakalavaland ;" *Mag. Geogr. Ges. Jena* ; No. 14, 1895 ; pp. 45.—DR. A. VOELTZKOW : "West Madagaskar auf Grand eigener Anschauung ;" *Verh. Ges. Erdk.*, Berlin, No. 23, 1896 ; pp. 170-184.—GAB. FERRAND : "Notes sur la région comprise entre les rivières Mananjara et Iavivôla ;" *Bull. Soc. Geogr.* Paris ; No. 17, 1896 ; pp. 5-25.—DR. A. VOELTZKOW : "Vom Morondava zum Mangoky. Reiseskizze aus West-Madagaskar ;" *Zeit. Ges. Erdk.* Berlin, No. 31, 1896 ; pp. 105-129.—DR. H. CHRIST : "Madagascar. Ein bedrohtes Missionsland ;" *Missionsbuchhandlung*, Basle ; 1895.—"Notes sur Madagascar : le Betsileo, commerce et immigration ;" *Bull. Soc. Geogr. Commer.* Paris ; t. xviii. 3 fasc. 1896.—A. J. WATERS : "La Cartographie ancienne de Madagascar ;" *Le Mouvement géographique* ; Brussels : No 27, July 5, 1896.—F. H. KRUGER : "Madagascar a propos de l'attaque de la Mission Norvégienne à Sirabé ;" *Journ. des Miss. Evang.*, Aout 1896 ; pp. 386-396, see *ante*, p. 484.—Documents diplomatiques. Affaires de Madagascar, 1885-1895. pp. 83. fol. : and 1896, pp. 3 fol.—LE MYRE DE VILERS : "Le Traité Hova ;" *La Revue de Paris*, Nov. 15, 1895 ; pp. 225-241. A. GRANDIDIER : "Les Routes de Madagascar ;" *Bull. Soc. Franc. des Ingénieurs coloniaux*, No. 2, 1896 ; pp. 32-24 ; also, "Biographie de Greve, naturaliste ;" *Bull.*

Mus. Hist. Nat. 3895; p. 138; also, "La Fortune des Malgaches;" *Bull. Comité de Madagascar*, Juillet-Août 1896; pp. 16.—A. MILNE-EDWARDS et A. GRANDIDIER: "Sur des Ossements d'Oiseaux provenant des terrains Récents de Madagascar;" *Bull. Mus. d'Hist. Nat.* 1895; pp. 9-11.—FILHOL: "Observations concernant les Mammifères contemporains des Épyornis;" *Ibid.* 1895; pp. 12-14.—ALLUAND: "Coléoptères nouveaux ou peu connus de la région Malgache;" *Ibid.* 1895; pp. 19-21.—DR. BAILLON: "Les Didiera de Madagascar;" *Ibid.* 1895; pp. 22-24.—KUNCKEL d'HERCULAIS: "Les Cétonides de Madagascar;" description d'espèces nouvelles;" *Ibid.* 1895; pp. 52-55.—FILHOL: "La squelette de l'*Hippopotamus Lemerlei*;" *Ibid.* 1895; pp. 88-91; VAILLANT: "Sur des Reptiles fossiles de Madagascar;" *Ibid.* 1895; p. 91-93.—KUNCKEL d'HERCULAIS: "Répartition des Carabides à Madagascar;" *Ibid.* 1895; p. 936.—CH. BRONGNIART: "Sur les Homoptères malgaches du genre *Flatoides*;" *Ibid.* 1895; pp. 94-97.—E. F. GAUTIER: "Sur les Terrains sédimentaires de Madagascar;" *Ibid.* 1895; pp. 178-181.—ROCHEBRUNE: "Recherches physiologiques sur les *Didierea*;" *Ibid.* 1895; p. 215. MOCQUARD: "Sur les Reptiles recueillis par M. Grandidier de 1867 à 1885;" *Bull. Soc. Philom.*, tome vii. (1895); pp. 93-136.—HENRI FROIDEVAUX: "Un explorateur de Madagascar au xviie siècle, Fr. Martin;" *Bull. de Géogr. Hist. et Descript.* 1896; pp. 38-77.—P. MELON: "Les Missions protestantes à Madagascar;" *Rev. chrétienne*, Juillet 1896.—A. COURMES: "La Colonization de Madagascar" (Conférence faite le 20 fevr. 1896); *Bull. Soc. G. ogr. Com. de Paris*; 1896.—REV. P. PROLET: "De l'Esclavage à Madagascar;" *Le Correspondant*, 1896; pp. 447-480; also, "De la Colonization à Madagascar;" *Ibid.* 1896, pp. 37.—C. DE RAULIN: "Mojangá, son importance, son avenir, Nosy vè et le Commerce de la Côte S.O.; L'île de Ste. Marie;" *Rev. Mar. et Col.* Nov. 1894; Août et Sept. 1896.—VINCENT et BUBOT: "Le Paludisme à Madagascar;" *Rev. Scientif.* No. 6, 1866; pp. 75-81.—G. LANDRIEU: A Madagascar. "L'île de Sainte-Marie;" *Rev. Marat.* No. 130, 1896; pp. 419-445.

Works in Malagasy.—From the Br. and For. Bib. Soc.:—*Ny Soratra Masina, dia ny Testamenta Taloha sy ny Testamenta Vaorao* (Malagasy Reference Bible; the references prepared by MISS H. GILPIN; carried through the press by REV. J. RICHARDSON); sm. 8vo, pp. 1142.

From the L.M.S. Press:—*Ny Sain' Andriamanitra hita amin' ny Asany* (The Wisdom of God seen in His Works), by REV. R. TOY; 12mo, pp. 116. A new, revised, and illustrated edition; 1st ed. 1877.)—*Malagasy Customs: Native Accounts of the Circumcision, the Tangena, the Fandroana, Marriage and Burial Ceremonies, etc.* Collected and edited by REV. W. E. COUSINS, M.A.; 12mo, pp. 51. Second edition; 1st ed. 1876).—*Boky Fampianaran-tena, fiandombohana hianatra teny Frantsay* (Primer of teaching one's self to learn French), by RAMINO, Inspector of L.M.S. Schools; 8vo, pp. 39.—*Geology; nataon' dREV. R. BARON, F.G.S., F.L.S.*; vol. i. pp. 191, with 51 Illustrations:—*Ny Koley sy ny Sakaizan' ny Mpianatra* (The College and Friend of the Student); this is a new periodical, commenced in February of this year, and intended as an organ of the L.M.S. College. It is largely devoted to the teaching of the French language. Monthly, 28 pages; editors, REV. J. SHARMAN, B.D., and JOHN RALAIKERA.—*Words and Sentences in Malagasy, English, and French.* Part I. pp. 49, 8vo; by MR. J. C. THORNE.—*Voloatin' ny Teny Frantsay* (The Marrow of the French Language); Parts i., ii. pp. 32; edited by REV. J. SHARMAN and MR. H. F. STANDING.—*Diksonary amin' ny Baiboly* (Bible Dictionary), pt. iv., KANONA to MPITANDRINA, 8vo, pp. 421 556; edited by REV. J. SIBREE.—*Tona mety halao ao an-tranon' Andriamanitra* (Tunes in Sol-fa adapted for the House of God); edited by REV. G. K. KESTELL-CORNISH, M.A. (shortly to be issued).—*Teny Soa* (Good Words); monthly magazine, vol. xxx. pp. 190; edited by REV. J. WILLS.—*Fanakian-teny Frantsay, misy Vokabulary* (French Reading-book and Vocabulary); arranged by REV. F. A. GREGORY, M.A., pp. 47.

Tantara sy Fomban-drazana. Nangonina sy nahad-RAINANDRIAMAMPANDRY (The History and Customs of the Ancestors). Antananarivo: 1892.

This is a small book of 132 pp. containing much curious material of interest to those who wish to make themselves familiar with the manners and customs of a Madagascar that is fast passing out of existence. The book contains Folk-lore tales, *Kabary*, and accounts of various old customs, as the Circumcision, the Poison ordeal, the Bathing Festival, etc. It is intended as a preparation for a very full *History of Madagascar*, written in the native language, and in process of being printed at the time of the author's death. About two-thirds of the material here collected has already appeared in other forms; but the book is none the less

useful on that account, and it will prove valuable both to students of the language, and also to those interested in the customs of the past.—W.E.C.

From the **F. F. M. A. Press** :—*Tsara ny Volamena, sy ny Tori-teny sasany koa* ("Gold is good," and other Sermons); by MR. HENRY E. CLARK; pp. 114, 12mo.—*Ny Fran-gonana sy ny Sekoly* (The Church and the School); monthly mag., pp. 98, 4to; edited by MR. J. SIMS.—*Ny Sakaizan' ny Tanora* (The Friend of the Young); monthly illustrd. mag., vol. xix. pp. 192; edited by RASOAMANANA.—*Ny Lalan' ny Syn-taksa Frantsay*; *nasiana Ohatra*; *Fiz. I. sy II.* (The Laws of French Syntax; Parts i. and ii.), pp. 48 each; by MR. J. F. RADLEY.—*Ny Famanta-ana. Hevi-teny fohy sady tsotra ary amin' ny Fahagagana nataon' i Jesosy Kristy*; *natao hianaran' ny Ankizy madinika* (Signs: Short and simple Expositions of the Miracles of Christ; for Children), pp. 98, 12mo; by MR. HENRY E. CLARK.

From the **S. P. G. Press** :—*Ny Fomba métrique. Fandrefesana sy Fandanjana, etc.*, *araka ny Fomba Frantsay* (Weights and Measures according to the French metrical system); arranged by REV. G. K. KESTELL-CORNISH, M.A.; pp. 12, 16mo.—*Gramara Fohifohy* (Short French Grammar); arranged by REV. R. ANDRIANARIVONY and REV. G. K. KESTELL-CORNISH, M.A. (shortly to be issued); pp. 64, fcp. 8vo.

From the **N. M. S. Press** :—*Physiologia specialy* (new ed. of Physiology; more than half of it new matter); 200 pp., 8vo; trans. by REV. DR. BORCHGREVINK from KIRKE and FUNKE.—*Ny Mpandresy ny Goarambe* (The Conqueror of Giants); pp. 100, 8vo; trans. by JAKOBA from A.L.O.E.—*Tantaram-pirenena* (General History); pp. 300, 8vo; by REV. VIG.—*Ny Mpamangy* (The Visitor); monthly mag. pp. 192, 8vo; edited by REV. D. JAKOBSEN.



METEOROLOGICAL OBSERVATIONS TAKEN AT ANTANANARIVO, 1895-6.

	Rainfall.	Average for 16 yrs.	Average temp. max. (Fahr.)	Average temp. min. (Fahr.)	Highest temp.	Lowest temp.	Mean temp.
1895	—	—	—	—	—	—	—
Nov.....	5 82	5'13	77'16	59'16	92	54	68'16
Dec.....	8 29	12'32	70'45	57'19	76	58	63'32
1896	—	—	—	—	—	—	—
Jan.....	8'48	11'54	69'74	61'0	73	58	65'37
Feb.....	14.60	10'27	69'44	61'27	73	58	65'35
March.....	1'87	6'31	70'25	60'06	74	57	65'15
April.....	3'40	1'81	70'83	60'20	78	54	65'51
May.....	'35	'60	65'74	55'09	70	50	60'41
June.....	'36	'57	64'10	52'32	70	48	58'21
July.....	—	'15	61'19	49'61	66	47	55'4
Aug.....	'05	'95	61'12	49'38	68	47	55'25
Sept.....	'12	'78	67'66	52'36	76	48	60'01
Oct.....	2'23	3'02	72'48	58'48	79	52	65'48
Total or	—	—	—	—	—	—	—
Average for 16 yrs.	45'57	53'39	68'31	56'34	71'6	52'6	62'43

J. SHARMAN.

L.M.S. College:
Fàravohitra.

NOTE.—The observations taken at Mojangà for 1895, and given on the following page, did not reach us in time to be included in the last number of the ANNUAL; but as Mr. Knott has kindly sent us the particulars from the *Quar. Journ. Met. Soc.*, we have thought it well to include them in the present number.—EDS.

METEOROLOGICAL OBSERVATIONS TAKEN AT MOJANGA.

BY STRATTON C. KNOTT, F.R. MET. SOC., H.B.M. VICE-CONSUL.

Long. 46° 19' 15" E. Lat. 15° 43' 0" S. Height above Mean Sea level 134 feet.

1894.	Mean Pressure at Sea Level.		Air Temperature.						Humidity.								
	11 a.m.	5 p.m.	11 a.m.	5 p.m.	Means.		Extremes.		Depression of Wet Bulb		Tension of Vapour.		Relative Humidity.				
					Min.	Max.	Min.	Max.	11 a.m.	5 p.m.	11 a.m.	5 p.m.	11 a.m.	5 a.m.			
	in.	in.									in.	in.	%	%			
April	29.982	29.905	85.1	85.1	73.2	88.8	68.3	92.8	10.7	8.9	.679	.749	56	62			
May	30.060	29.994	82.4	81.6	70.3	85.2	66.1	88.0	10.7	8.8	.615	.663	56	61			
June	.157	30.081	79.6	79.8	65.9	83.6	62.8	86.2	13.7	12.1	.461	.513	46	50			
July	.145	.071	80.3	79.2	66.5	84.9	62.0	88.8	13.4	9.9	.482	.577	46	59			
Aug.	.138	.053	81.7	80.9	67.1	86.8	64.2	90.4	15.1	11.5	.460	.559	43	54			
Sept.	.103	30.021	84.4	79.8	69.5	87.1	66.8	92.1	15.4	8.4	.505	.635	43	62			
Oct.	.032	29.955	87.5	82.5	73.2	90.6	69.1	96.5	15.7	8.5	.558	.697	43	63			
Nov.	30.022	.939	87.3	82.7	74.0	90.4	70.8	96.5	14.0	8.2	.621	.714	50	64			
Dec.	29.948	29.872	83.2	82.5	74.2	86.2	71.0	93.3	7.0	6.3	.779	.786	70	71			
April to Dec. 1894	30.065	29.988	83.5	81.6	70.4	87.1	62.0	96.5	12.9	9.2	.573	.655	50	60			
Apr. 92 to Mar. 93..	30.028	29.958	84.5	82.2	71.6	88.7	60.0	98.8	12.3	8.9	.610	.675	51	61			
Apr. 93 to Mar. 94..	30.049	29.972	83.9	82.0	71.0	87.2	61.1	95.5	12.3	9.0	.600	.668	51	60			
1894.	Amount of Cloud.		Rainfall.		Weather, No. of Days of						Wind, No. of Observations of						
	11 a.m.	5 a.m.	Total.	Greatest Fall.	Rain.	Thunder Storm.	Clear Sky.	Over- cast.	Gale.	N.	N.E.	E.	S.E.	S.	S.W.	N.W.	Calm.
			in.	in.													
April	5.0	4.5	8.45	4.69	8	10	9	9	2	5	2	5	20	3	2	16	4
May	3.5	2.6	.58	.43	2	2	15	4	0	4	3	4	18	4	9	17	0
June	1.2	3.6	0	0	14	0	0	0	1	3	31	12	5	5	1
July	2.4	3.9	0	0	16	4	0	0	2	1	25	6	12	11	0
Aug.	2.5	4.8	.59	.34	4	1	14	6	0	1	4	2	30	1	6	12	0
Sept.	1.7	2.7	.05	.05	1	1	19	2	0	0	1	2	11	2	6	37	0
Oct.	1.8	1.6	.70	.45	5	8	22	0	0	1	0	3	11	2	3	35	0
Nov.	4.7	5.6	7.38	2.37	8	10	8	7	0	2	4	2	8	1	3	38	1
Dec.	7.8	8.0	8.30	1.61	17	13	2	22	0	7	6	1	4	2	5	30	6
April to Dec. 1894	3.4	4.1	26.05	4.69	45	45	119	54	2	20	23	23	158	34	51	201	12
Apr. 92 to Mar. 93	3.1	3.6	57.26	4.13	71	94	171	45	2	136	59	69	78	54	80	171	21
Apr. 93 to Mar. 94	4.0	4.3	51.91	5.43	75	88	127	78	0	59	42	66	149	46	49	262	20

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